Required Tools:
Many of these tools are available from Dusty Strings; contact us for a price list.
7/64" ball end hex driver
3/16" nut driver*
5/32" nut driver
5/32" open end wrench
String Chart
Electronic tuner
1/4" open end wrench
5/64" hex wrench**

*For harps with more than 26 strings
**For harps with screws in the unused sharping lever screw holes

Sharping Levers Installation
1. Lay your harp on a bench or table, with the lever side facing up. Place a blanket or a towel underneath your harp for protection.
2. Remove the lever screw-hole covers from the harp neck. Newer Dusty Strings harps use a plastic cap. The caps pop right out and can be removed with a fingernail, small knife, or small flat-bladed screw driver. Exercise caution if you use a tool as there is a risk of damaging the finish on the harp. Older harps will have black metal screws that need to be removed with a 5/64" hex wrench.
3. Install the levers using the 7/64" ball end hex driver. The ball end allows you to turn the screw when the driver is at an angle. Make sure to use the correct lever size for each string. The proper note/lever combination can be found on your harp’s string chart (string charts can be found on our website at www.dustystrings.com). Each lever has its size (a number between 0 and 15) imprinted on the cam next to the steel nut (see figure 1).
4. Place a brass washer on the shank of each supplied lever screw.
5. Align the levers:
   a. Position each lever so that the screw is centered in the slot in the base of the lever (see figure 1).*
   b. Align the string notch of each lever over its string, making sure the notch is centered exactly on the string.
   c. Make sure the vertical side of the lever base is exactly parallel to the string. A lever that is not centered on the string or exactly parallel to it may make a clicking noise or sound dull when the lever is engaged.
6. Do not tighten the screws all the way yet, but make them snug.

*Some of the earlier Ravenna 26 and Ravenna 34 models had the levers placed with the screw at the top of the slot. It will be apparent to you if this is the case by looking at how the original levers were set up. Duplicate the screw/slot relationship you already have.

Optional Step: At this point, you have the option of changing the stiffness in the action of your new levers. Use the 1/4" open end wrench to adjust the steel nut on the side of the lever. Loosening or tightening the nut slightly will result in a noticeable change in the lever action. Be sure the lever notch remains centered over the string.
Lever Regulation

Regulation is the process of setting the levers and bridge pins so that the levers raise the pitch of the string by exactly one half-step when they are engaged. If you have put new strings on the harp it is best to do this regulation step after a few days and two or three tunings per day. This will give more tuning stability to the strings and a more accurate regulation. To see if any adjustments are necessary, you can simply tune each string precisely with the lever down. Then, engage the lever and check with an electronic tuner to see if it is an exact half-step higher. If it isn’t, you will need to regulate it as follows:

1. If only a small adjustment is needed, you can regulate the sharping lever by adjusting the bridge pin height. These are the brass, hexagonal pins that guide the string and are between the sharping levers and the tuning pins (see figure 2). There are two sizes of bridge pin, 3/16” for the bass and lower mid-range strings, and 5/32” for upper mid-range and treble strings (26 string harps only have 5/32” bridge pins). Some of the 5/32” size pins have a beveled head. The bridge pins are threaded and will screw into the neck when they are turned clockwise. Use the appropriate nut driver for the hexagon-top pins you need to adjust. For the beveled pins, use the 5/32” open end wrench to grip the shaft of the pin and turn it. When the lever is not engaged, the string should ideally lie midway between the cam and the fret, which is the steel pin against which the string is pushed by the cam (see figure 1). Take this into consideration when determining what operation to use during regulation. If the string is too close to either the cam or the fret, plucking the string may cause it to buzz against one side or the other.

2. If the pitch of the string is just a bit sharp of the half-step when the lever is engaged, use the appropriate nut driver to lower the height of the bridge pin as described above (turning clockwise to screw it further into the harp neck). Then check for an accurate half-step again using an electronic tuner. The slightly lower string tension that results from the lower bridge pin height reduces the degree of sharping when the lever is engaged. The bridge pins are set at the factory to be pretty close to their height when regulated. Usually, no more than one full turn is necessary to achieve regulation.

3. If the pitch of the string is just a bit flat when the lever is engaged, use the appropriate nut driver to raise the height of the bridge pin (turning counterclockwise), then check for an accurate half-step again. The slightly higher string tension that results from a higher bridge pin height increases the amount of sharping when the lever is engaged.

4. If the lever is far enough off proper regulation that it cannot be corrected by raising or lowering the bridge pins because the string begins to buzz against the lever cam or the lever fret, you may need to use the 7/64” hex head ball driver to slide the lever up or down. This type of adjustment must be carefully done, as small movements make a fairly large change in the sharping, especially in the mid and upper range. When you move the lever, be careful to keep it in line with, and exactly under, the string. Make sure you do not overtighten the screw.
   a. If the lever sounds too sharp when engaged, you need to move the lever up very slightly (towards the tuning pins).
   b. If the lever sounds too flat when engaged, you need to move the lever down very slightly (towards the soundboard).

5. If you move the lever, and the resulting half-step is close but still not quite exact, you can make a fine adjustment using the bridge pins as described above.

6. Once the regulating is done, tighten the lever screws snugly down the rest of way. Again, be careful not to tighten them too far – this will strip the threads in the hole and you won’t be able to fasten the lever securely to the neck.

Your lever installation is complete! Enjoy your new levers!