

# Dusty Strings

Makers of Harps and Hammered Dulcimers

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## Lever Harp Regulation

### Tools:

- 7/64" ball end hex driver (for Loveland lever screws)
- 5/32" nut driver (for Dusty Strings medium threaded bridge pins)
- 3/16" nut driver (for DS large threaded bridge pins - harps with more than 26 strings)
- 5/32" open end wrench (for DS beveled bridge pins)
- 1/4" open end wrench (for Loveland lever handles)
- T8 or T9 Torx driver (for Camac lever screws)
- Optional: T5 and T6 Torx driver (for Camac lever handles - not commonly needed)
- 4mm nut driver (for Camac bridge pins - non-DS harps)
- 5mm nut driver (for Camac bridge pins - non-DS harps)
- 6mm nut driver (for Camac bridge pins - non-DS harps)
- Electronic tuner

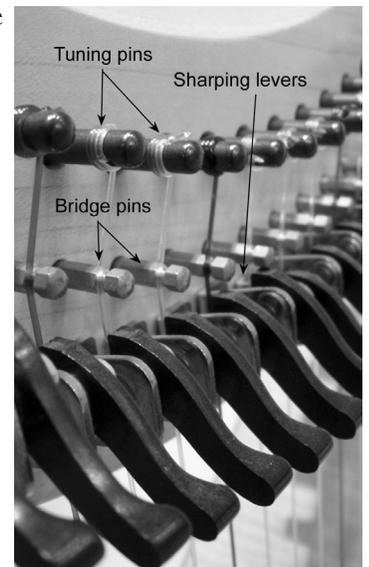
### Process:

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. Harps are regulated when they are built, but as they adjust to the ongoing tension from the strings, the relationships between levers, pins, and soundboard will subtly change over the years, meaning that harps need to be regulated periodically. All harps adjust at different rates, so to see if regulation is 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 sharpening lever by adjusting the height of the bridge pin. This is the pin that guides the string and is between the sharpening lever and the tuning pin. Most harps have multiple sizes of bridge pin, and you can refer to the list above to see what tools you'll need. Threaded bridge pins 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 beveled pins (with a pointy top), use the 5/32" open end wrench to grip the shaft of the pin and turn it. (*Note: Not all harps have threaded bridge pins. If you have round bridge pins, you will need to pull them out or tap them in, rather than turning them.*)

2. Most of the time, you'll probably find that the pitch of the string is a little too sharp of the half-step when the lever is engaged. In this case, 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 sharpening when the lever is engaged. Usually, no more than one full turn is necessary to achieve regulation.

3. It is less common to find that the pitch is flat when the lever is engaged, but it can be addressed in the same way. 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 sharpening when the lever is engaged.



*Instructions continue on other side*

4. 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 drawing). 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. If the lever is far enough off proper regulation that it cannot be corrected by raising or lowering the bridge pins without causing the string to buzz, you may need to slide the lever itself up or down.

5. Adjusting the lever position must be carefully done, as small movements make a fairly large change in the sharpening, especially in the mid and upper range. Loosen the screw or screws that hold the lever onto the neck of the harp, and slide it up or down. When you move the lever, be careful to keep it in line with, and exactly under, the string. When tightening the screws again, get them snug, but make sure not to over-tighten them. If you strip the threads in the hole, you will not be able to fasten the lever securely to the neck, and will have to spend some time repairing the hole.

6. If the strings sounds too sharp when the lever is engaged, you need to move the lever up very slightly (towards the tuning pins). If the string sounds too flat when the lever is engaged, you need to move the lever down very slightly (towards the soundboard).

7. Once you have gotten an approximate half step by moving the lever, you will probably need to make a fine adjustment using the bridge pin as described on the other side.

### Other tips:

For Loveland levers, it is very important that the lever is exactly parallel to the string, and that the notch in the lever cam is centered directly over the string. If the lever is at all crooked, or the notch is off-center, you will hear a “plink” sound every time you engage the lever.

It is easy to adjust the feel of the Loveland levers to your liking. Using a 1/4” open end wrench, loosen or tighten the nut on the side of the handle to make the lever easier or more difficult to flip. Be aware that if you go too loose, the lever won’t stay engaged, and may also lose some of its tonal preservation. If you go too tight, you won’t be able to flip it at all!

If you encounter a Camac lever with a wobbly handle, you can use a T6 Torx driver to tighten the tiny screw on the side of the handle.

If a lever handle cracks or breaks, it is usually possible to replace just the handle instead of the entire lever. Contact your harp-maker for help with this.

Sharpening levers come in many different sizes, and each size is designed to work best with a narrow range of string diameters. If you need to replace a lever or cam, make sure you get the right size for that particular string. Likewise, if replacing a string, make sure you use the string specified by the harp maker. A string-lever mismatch can result in a buzzing string, a dull tone, or a broken lever.

When you’re finished with your regulation, it’s a good idea to check all the screws for snugness, even if you didn’t move any levers. Screws can occasionally work themselves loose, and the levers will do a better job of tonal preservation if they are tight against the harp. But be careful not to over-tighten the screws, or you’ll strip the holes!

### Useful Links on our website:

Tools: <https://manufacturing.dustystings.com/harps/accessories-hardware/tools-maintenance>

Maintenance & Troubleshooting info: <https://manufacturing.dustystings.com/harps/maintenance-troubleshooting>

