



HOW TO REGULATE CAMAC LEVERS

OVERVIEW

Regulation is the process of making fine adjustments to the levers and bridge pins so that, when engaged, the lever raises the pitch of the string exactly one half step. Levers are regulated at the factory during the installation process but may fall out of regulation as the harp settles in and adjusts to the tension of the strings.

YOUR REGULATION KIT INCLUDES:

- T-8 torx driver (for the screws that hold the levers to the neck)
- 5/64" allen key (for the medium bridge pins)
- 3/32" allen key (for the large bridge pins)

You'll also need an electronic chromatic tuner. You can use a stand alone tuner or a tuner app on your smartphone.



Korg CA-2 electronic tuner



NOTE: Your strings need to be stable and holding pitch before you attempt regulation.

KEY CONCEPTS

The primary function of a sharpening lever is to raise the pitch of the string exactly one half step. If you engage the lever and it raises the pitch either too much or not enough, it needs regulation. In either case, there are two adjustments you can make. **Always try adjustment one first. If that is not enough, then try adjustment two.**

PROBLEM	Sharpening lever engaged and pitch is SHARP.	Sharpening lever engaged and pitch is FLAT.
ADJUSTMENT 1	Slide the lever UP toward the bridge pin	Slide the lever DOWN toward the soundboard
ADJUSTMENT 2	Reduce the height of the bridge pin by threading IN to the neck	Raise the height of the bridge pin by threading OUT of the neck

REGULATE THE LEVERS

Tune the string to its correct open pitch (e.g., C-natural). Engage the lever by lifting the handle fully, and test that pitch (C-sharp) by plucking the string. You can release the lever and make sure the pitch of the open string has not changed.

IF THE ENGAGED PITCH IS SHARP:

Use the T-8 Torx driver to loosen the screws and **slide the lever up toward the bridge pin**. Tighten the screws and test the pitches (open and engaged) again.

If the engaged pitch is still sharp, use the allen key to **lower the height of the bridge pin**. This reduces the amount of stretch when the lever is engaged.

If the above strategies don't solve the problem, you may need to drill new mounting holes for the lever or file the slots a little to enable more movement.

IF THE ENGAGED PITCH IS FLAT:

Use the T-8 Torx driver to loosen the mounting screws slightly and **slide the lever down** toward the soundboard. Tighten the screws and test the pitch (of both the open string and the engaged string) again.

If the engaged pitch is still not sharp enough you can **raise the height of the bridge pin**. This changes how much stretch it puts on the string and is especially useful in the higher registers. Make small adjustments and test the string with the lever disengaged to make sure you haven't created a buzz.

OTHER TROUBLESHOOTING TIPS

Buzzing or rattling can occur when the sharpening lever is NOT engaged if the string is too close to the fret post or the bottom stop. Adjust the height of the bridge pin to correct this problem.

If a string sounds funny (buzzy or weak) when the lever is engaged, then the mounting screws may not be tight enough. Use your Torx driver to tighten them up.

If you end up with a clicking sound as the lever engages, your lever is not quite centered under the string. This causes the string to click sideways into the groove. Try loosening the mounting screws and sliding the lever sideways.

Sometimes we have to remove the lever and use a needle file to open the slot a little wider in the desired direction so we can adjust it further.