

TOOLS & AIDS



HOHNER



Illus. C05-01

For this workshop we recommend the »**HOHNER SERVICE SET MZ99331**, which includes all the basic tools necessary for harmonica maintenance as shown in these workshops.

A compact and highly recommendable toolkit for the first steps in harmonica maintenance. The set is suitable for both diatonic blues harps and chromatic harmonicas and enables basic maintenance work such as adjusting reed offsets, tuning and centering reeds, exchanging faulty windsavers and maintaining the slide assembly.

For this Workshop C05 - Reed Offsetting you will need the following tools:



Illus. C05-02

Tool 2:
Reed Lifting Blade with Reed Wrench
 An essential tool for many reed adjustment operations.

Featured in workshops:
 »Workshop C04 - Centering
 »Workshop C05 - Regapping
 »Workshop C07 - Tuning



Illus. C05-03

Tool 3: Hook Tool
 Used when offsetting and tuning reeds situated on the inside of the reed plate (blow reeds)

Featured in workshop:
 »Workshop C05 - Regapping

C05 - Reed Offsetting

STEP01 - Reed Offsetting Basics



Illus. C05-04

The opening between the reed tip and the reedplate is called the reed gap or offset.

Without this gap, no air would be able to flow through the slot, so the reed would not be able to vibrate and create a note.

Every player needs to learn to set up reeds so that the offsets suit his or her personal playing style. This is as basic and essential a skill as is playing the instrument. Each player's approach is different, so that it's impossible to gap a harmonica to suit all playing styles.

General Rules for Reed Offsetting:

General Rule 1:

Default setting of the reed offset:

The gap at the reed tip = reed thickness

General Rule 2:

The louder & more strongly you play, the higher the offset should be

However, notes also need to be able to sound at low air pressure, otherwise you can't play quietly. If the offsets are too high (as in the example shown in Illus. C05-05, the front reed) this will not be possible.

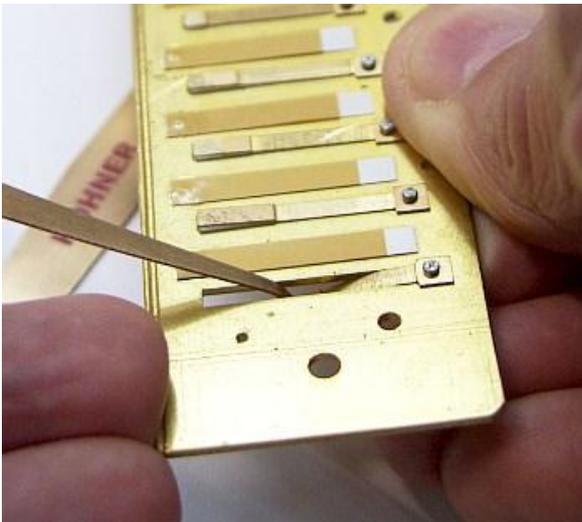
STEP 02 - Lowering Reed Offsets



Illus. C05-05

If the offset is too high, the reed won't respond properly.

On removing the covers, one can immediately see that the offset is too big, as shown in Ill. C05-05 on the left.



Illus. C05-06

With the **Hook tool (3)**, we push the reed tip deep inside the slot.

Please note that **the reed is a spring** and has to be bent past its elasticity point in order to reset the gap.

Due to the **memory effect** of the metal, the reed may even return to its former position after a few minutes. For this reason it's essential to always "plink" the reed by plucking the tip with the **reed lifting blade (2)** several times after adjusting the offset to ensure that the reed has found the desired new rest position.

We recommend always doing this every time you work on a reed, both during and after the operation in question. This applies to tuning and other reed adjustments as well as offsetting.

When adjusting the offset, only apply pressure to the reed tip. It's important to avoid buckling the reed near the foot (rivet pad), as this is difficult to correct and can increase the risk of breakage.

A reed in its rest position should never curve downwards into the slot, whether at the tip or in the middle. Reeds should have a straight profile when viewed from the side. If they curve at all, it should be upwards towards the tip, away from the reedplate.

C05 - Reed Offsetting

STEP03 - Raising Reed Offsets



Illus. C05-07

Is the offset too low, or have you perhaps lowered it further than you intended? Then you need to learn to raise it.

III. C05-07 shows a reed which is offset too low.

Reeds also need to respond at high air pressure in order to allow loud playing... and if the offset is too low, this isn't possible and the reed will stick.



Illus. C05-8

Use the **Reed lifting blade with reed wrench (2)** to carefully bend the reed tip upwards and increase the gap.

It's important to reach a compromise, where the sound is exactly the same whether playing quietly or loudly and the reed responds quickly in both cases.

As you've probably noticed in the sound example above, it's best to first test the response of the reed by playing as softly as possible, and then test the response to a short hard attack at high volume.

It's up to you to decide whether you want the instrument to have a balanced response when playing more gently or if you like to play more powerfully and need fast response at high volume. Really accomplished players may even gap two otherwise identical instruments differently in order to be able to match the varying characters of two different pieces of music.

C05 - Reed Offsetting

STEP04 - Gapping the Assembled Instrument



Illus. C05-9

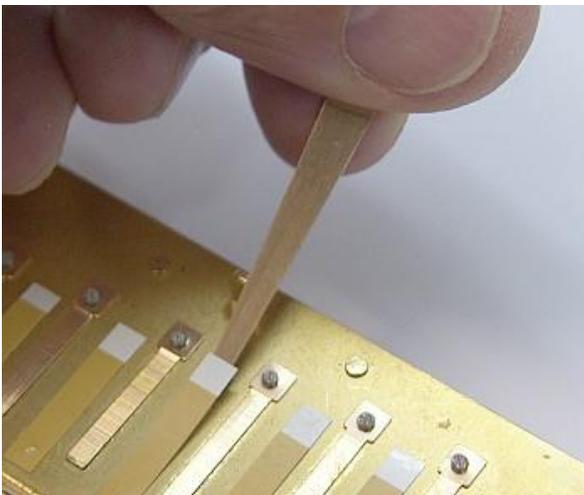
In general, fine adjustments to the reed offset are only possible when the instrument is assembled, because that's the only practical way of testing reed response. The best person to do this is the experienced player themselves, because he/she is the only one who can feel exactly how a reed responds to the individual playing style. Many such players also adjust the reed offsets on new instruments to reflect their requirements, but this is your own responsibility, should you choose to do so.

One disadvantage of offsetting an assembled instrument is that this method doesn't allow you to 'plink' the reeds properly due to the influence of the windsavers. This means the memory effect of the metal may cause the reed to return to its former position, so that you need to repeat the entire procedure at a later date.

Again it's the reeds mounted on the inside of the reedplate that present the biggest problem here.

Illus. C05-09 shows the advantage that the translucent bodies used on the »HOHNER Super 64X or the »HOHNER Amadeus offer when offsetting.

Controlling the gaps of the reeds and valves on the inside of the reedplates is much easier, as with an acrylic body every reed and windsaver valve is clearly visible.



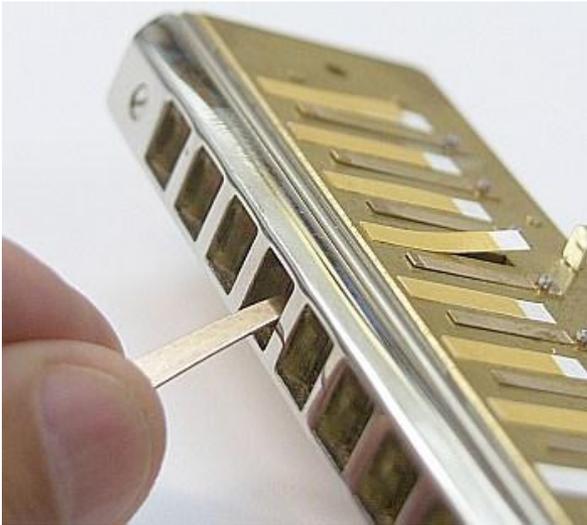
Illus. C05-10

Raising the offset of a reed on the inside of the reedplate.

Illus. C05-10 shows how the gap is raised on a reed situated inside the body...

Inserting the tip of the Hook Tool (3) underneath the windsaver, you press the reed tip downwards. Be careful not to damage the windsaver. You will probably have to push the reed down several times to achieve a noticeable change in the offset. Here playing the reed has to replace plinking it, do this after every adjustment.

C05 - Reed Offsetting



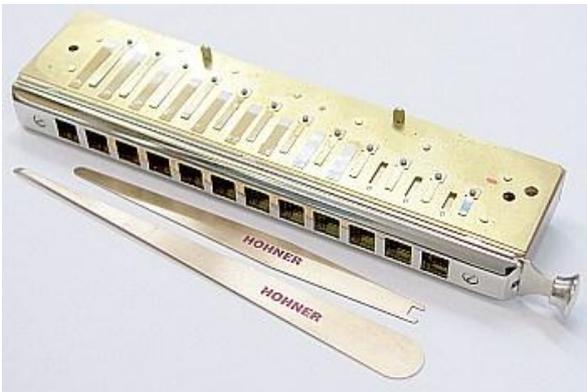
Illus. C05-11

Lowering the offset of a reed mounted on the inside of the reed plate.

Illus. C05-11 shows how to lower the gap on an inside reed.

Put the **Hook Tool (3)** through the channel opening and carefully push the reed tip up and through the slot, being careful not to damage the windsaver over the outer reed in the same hole, which is located right next to the reed you're adjusting but is inside the channel, so you can't see it. Once again, play the reed after each adjustment to check whether you've lowered it far enough.

STEP05 - Summary



Illus. C05-12

In the course of this **Workshop C05 - Offsetting** you'll probably have realized that the response of harmonica reeds is dependent on your individual traits in respect to playing style, volume and embouchure as well as the form of your vocal tract.

We hope that this will help you understand why it simply isn't possible to ensure that a new harmonica set up in the factory can fulfill all of those widely differing personal requirements.

The harmonica specialists at HOHNER have no choice but to set the reed gapping to a mean value based on 150 years of experience, which has proven itself to be suited to the needs of the majority of players.

However, in some instances this factory setting may not be optimal for your personal needs. We suggest that experienced players should learn how to adjust reed offsets themselves, just as guitarists need to be able to adjust the action of guitar strings to suit their individual requirements and playing styles.