

Tuning Table

AKKOfune

compact V4

User Manual



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AKKOfune compact Version 4

Tuning Table for Reed Instruments



User Manual

The whole purpose of the device

Many accordion or squeezebox workshops replace reed plates or want to change the character of the instrument. You always need a tuning table for this purpose and of course to check the tuning of an instrument and eventually correct some reeds.

The AKKOfune tuning table offers possibilities for testing and tuning complete treble or bass „halves“ of an accordion; also complete reed blocks taken out of the instrument and single reed plates.

Using a tuning device (as e.g. the Accordion Tuner from Dirk's Projects) you may easily tune the instrument.

This description of works is limited to the accordion – other squeeze boxes may be handled accordingly.

Advantages are the simple usage and the reproducibility of measurements.

The very compact tuning table is powered by a standard 12V DC notebook power supply; there are no hazardous voltages inside the device.



The needed air stream is generated by a special radial blower and may be switched instantly from PUSH to PULL. The blower speed is electronically controlled and the resulting air pressure is as well electronically measured and displayed on the front panel.

The Pressure ranges from approx. 0.2 mbar up to approx. 10 mbar; it can be limited electronically to a lower pressure.

10 mbar = 1000 Pascal are equivalent to the max normal playing pressure for an accordion.

Because of the pressure influence on the tone pitch it is very important to keep the pressure at a constant level.

One adjustment should show a similar display read for Push and Pull. The display should be set to zero before starting a measurement to avoid a difference between push and pull reading for double the zero deviation.

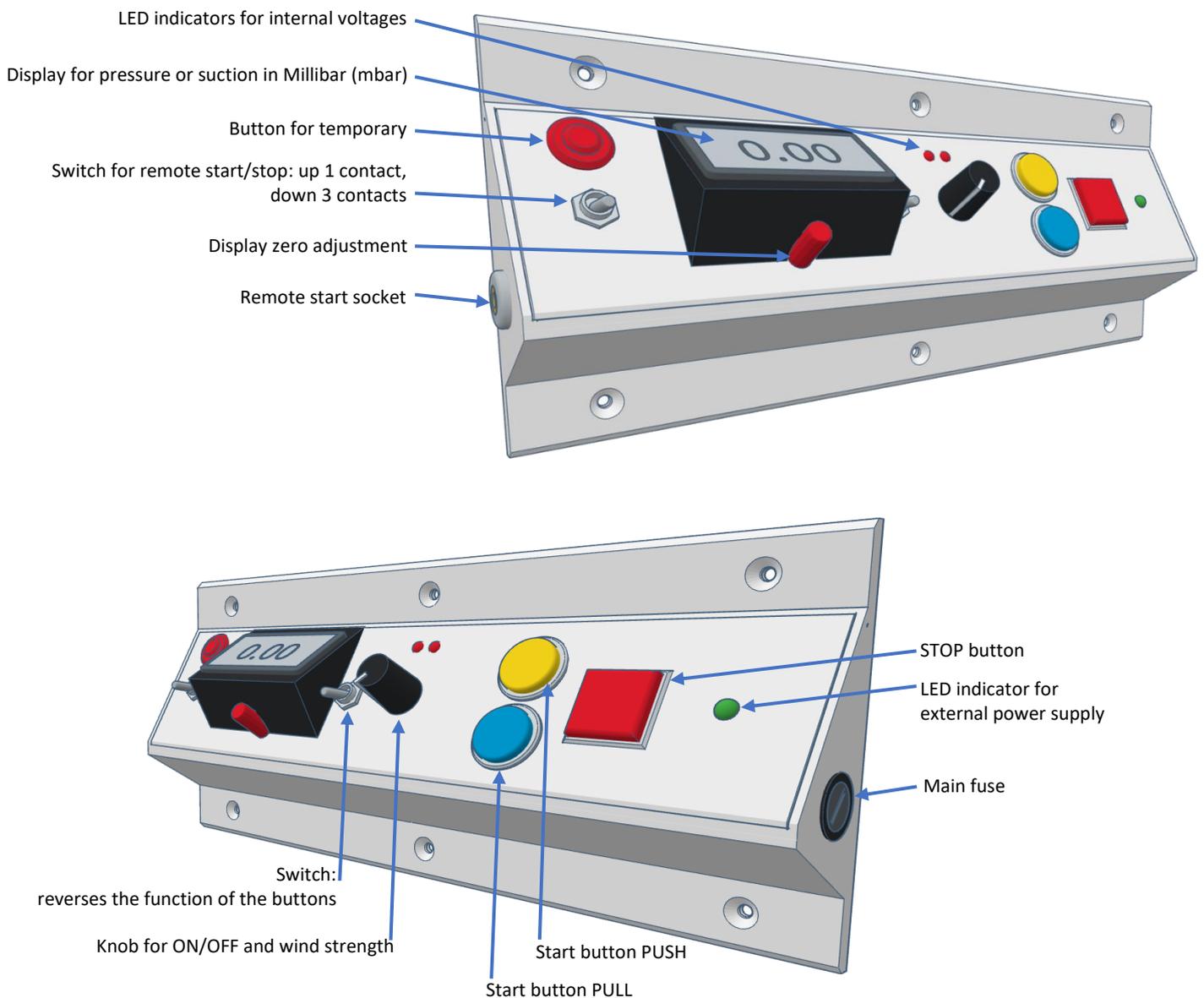


Due to the version update

The new Version 4 of AKKOtune compact has a complete new concept of operation. The wind direction management is no longer made by mechanical but servo-driven valves. All control is now electrical and the new control elements are shown below.

In the manual you may still see pictures of older version of AKKOtune.

Pictures show the new operating panel of AKKOtune compact V4



Scope of Work

- For testing a „complete instrument“ the air stream has to go through a large vent into the instrument’s belly.
- For testing a reed block you will need a small hole of 8 mm only (or a square shaped hole).
- For testing two rows of parallel aligned tone chambers or complete reed blocks you will need a slotted hole with 8 mm width and about 30 mm length: this would make the measurement of beat frequencies feasible. You can blow the base reed and the corresponding beat reed, which are mounted on two different reed blocks together.
- For testing a single reed plate one would use a special holder providing also a tone chamber to make the reed swinging correctly.

To adapt the AKKOtune tuning table for different tasks it is possible to use different inserts providing various blow holes and e.g. a single reed plate holder.

For better illustration please also visit **YouTube.com** and view the video: **AKKOtune – operating the tuning table.**

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1. Preparation and Power ON

AKKOtune is supplied with a standard 12VDC notebook power supply from the mains voltage.

The coaxial DC plug of the power pack is plugged into a socket on the rear right - if the power pack is live, the LEDs and the pressure indicator on the front panel light up. The power supply is supplied with a power cord with a switch, with which the tuning table can be switched off. The I / O switch on the front only switches the fan on and off.



The LEDs indicate that the internal voltages 12V for the fan, 8.4V for the servo control, which regulates the wind current and direction, as well as the 5V for the pressure sensor and control electronics are available.

The pressure display is supplied with potential-free 9V, which is indicated by the background lighting of the display.

If one LED or the display does not light up, there is an electronic fault, if all three do not light up, the fuse on the right-hand side of the control panel has blown or the 12V supply from the power supply unit is not available.

When switching on with the rotary knob on the control panel, the fan starts up briefly. This rotary knob is also used to set the speed of the fan, which only starts when the yellow or blue button is pressed. The red button stops the fan.

After switching on the fan, the zero point of the display is checked and, if necessary, set to 0.00 with the small rotary knob below. When the device heats up, the zero point can run away a little, which is then re-adjusted with the rotary knob. When the display is touched, unused symbols may appear; these disappear again after a short time and do not represent an error.

2. Start/Stop and Pressure Adjustment

The SPEED rotary control keeps the set speed of the fan constant at the desired value. The maximum pressure or pull of approx. 1000 Pascal (10 mbar) can normally not put excessive strain on the tongue, unless it is already torn. The pressure corresponds to what a player creates in the instrument at high volume. For tuning work, the maximum speed in the normal version of the AKKOfixx compact was electronically limited. Applying more pressure would not be appropriate for the task of tuning, as it would greatly affect the pitch of the reeds. If the knob is turned to the low end it may happen that the blower does not start when using



PUSH or PULL buttons. Then turn the speed up and back again.

3. PUSH/PULL - Switching the air stream

There are three pushbuttons (yellow, blue and red) on the front of the tuning table. The yellow button starts the blower and sets the internal air flaps via electronically controlled digital servo so that air flows out of the blowhole. When the blue button is pressed, the wind direction is reversed. The red button stops the air flow immediately.

A small toggle switch "reverse / normal" reverses the above function.

This is helpful if you place a reed block over the blowhole instead of a "halved" instrument. While with PULL the reed blocks inside the

instrument are blown from the outside to the inside, this is the other way around when they are dismantled. You can easily adjust this with the REVERSE switch.

The small red push button on the left side stops the air flow as long as it is pressed. The fan continues to run, but the internal air flaps do not allow air to flow through the blowhole.

When the button is released, there is a slight blast of air that applies an impulse to one of the reeds.

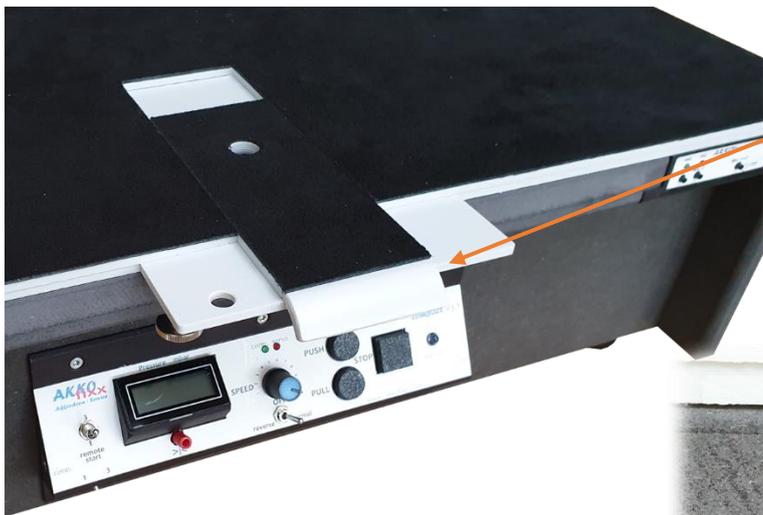
There is also a socket for connecting a foot switch or an attachment device (AKKOblock) for direct tuning of entire reed blocks. The switch positions are for the selection of whether a single contact is connected or, for example, a foot switch that duplicates the three start / stop buttons on the control panel. In the case of a single contact, the function of the momentary stop is duplicated.

4. Changing the BlowHole Inserts

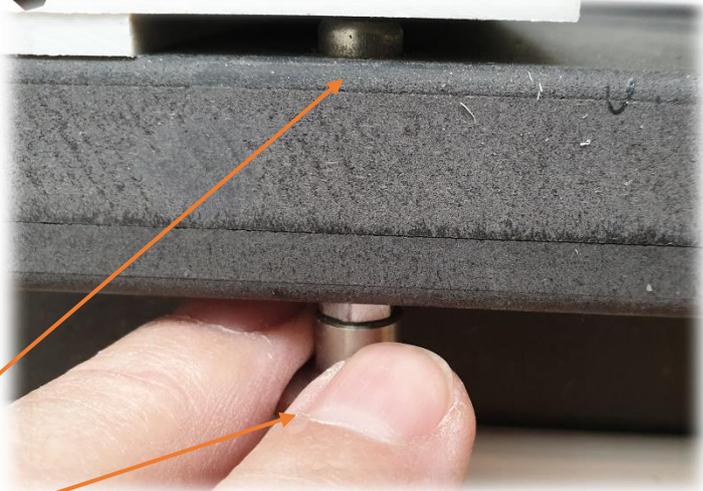
The top plate of the tuning table consists of a 24mm thick plate plus a cover made of two layers of 4mm polystyrene and a top layer of robust saddlery leather with the "meat side" facing up. The lower layer of polystyrene has a large cut-out in the middle of the front (above the large blow hole in the black plate) and the layer above has a slightly smaller cut-out. The inserts for adapting the blowhole size to the task consist of a polystyrene plate, which is inserted into the large cut-out and covered at the edge by the upper plate. This creates a largely airtight seal for the insert that is used.

In order to secure the slide-in unit against unintentional pulling out, a locking bolt is inserted in the front area, which can be pulled down 4 mm on the knurled nut. This releases the lock and the insert can be pulled out. To insert a module, the locking pin must also be pulled down.

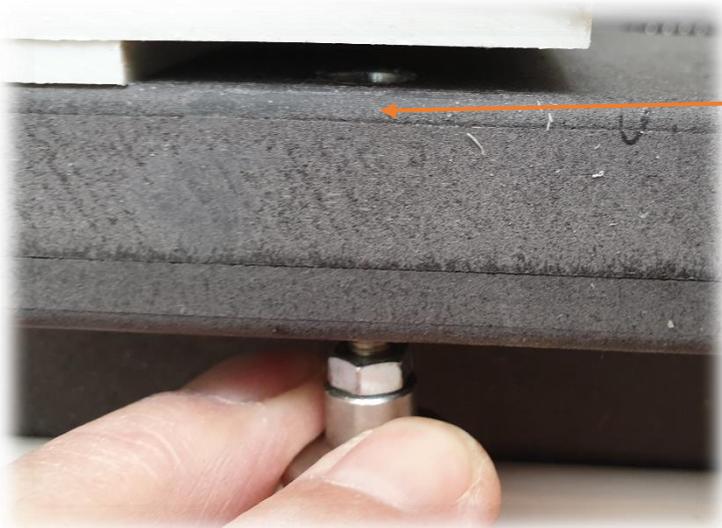
In order to prevent the bond between the lower and upper insert plate from loosening, make sure when pulling out the insert that it is pulled straight and not upwards.



BlowHole-Insert



Locking Pin and Curled Nut



Locking Pin pulled

5. Measurements on a dismantled reed block

To your attention:

PUSH on ***dismatled reed blocks***

IS EQUAL TO

PULL on ***mounted reed blocks***

(use the reverse switch accordingly)

To check and measure a single sound post that has been removed from the instrument, an insert with an **8 or 12 mm blow hole** is inserted into the table top. The insert forms a continuous plane with the rest of the surface of the table, on which the sole of the reed block can easily be slid and seals.

In order to push the individual tone chambers quickly one after the other over the blow hole, we use a stop bar that is fixed by means of two knurled screws and is easily adjustable.

In order to set the stop bar (reed block guide) correctly,

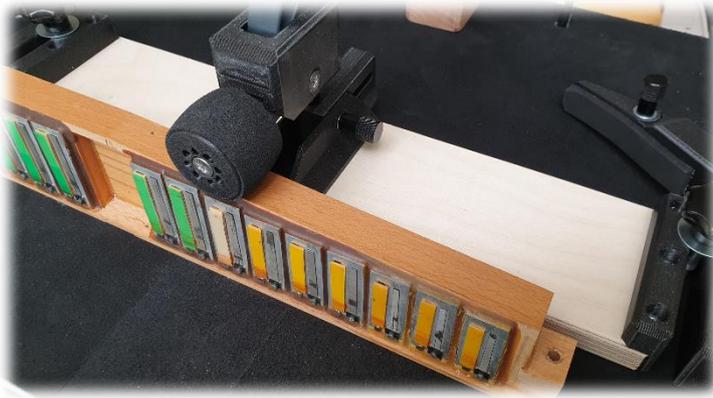
the reed block is placed vertically against the bar and the guide is moved until the blowhole coincides with the blow hole.

The reed block can now be moved quickly along the stop.

The stop bar is optionally available with a hold-down device, which can also be moved back and forth and thus adapted to the shape of the reed block. This makes it possible to have both hands free for working and not have to press the reed block with one hand during PUSH wind.

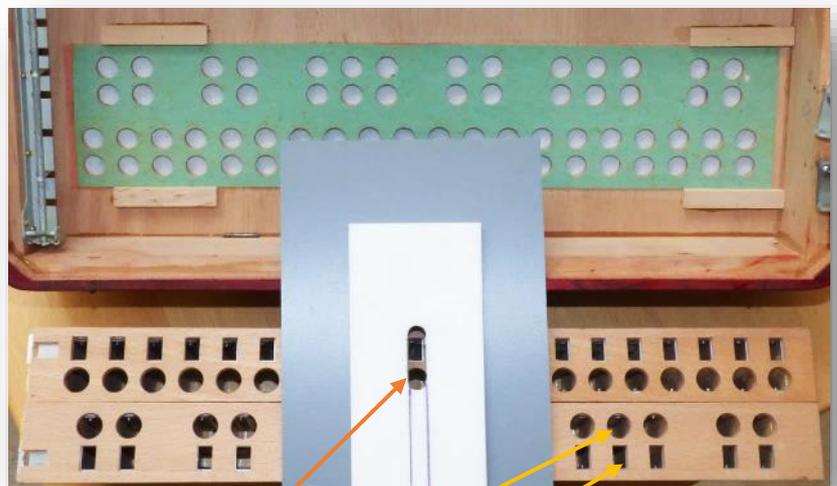
As a standard, this version has an attachable spring-loaded roller, which makes it possible to slide the reed block along the stop bar without having to loosen the hold-down device, and an extension to clamp two parallel reed blocks.





In order to blow both chambers of the same position or two reed blocks in parallel on a reed block, an insert with a slot is used; the stop is positioned so that the slot does not protrude beyond the sole of the reed block.

Blowing on two parallel reed blocks makes it possible to sound the single choir keynote together with the associated beat tone, even if it is on a second reed block.



Insert with slot and reed blocks with parallel lying tone chambers for basic and beat tone

By using Dirk's accordion tuner (software), the beat can be determined very easily and the possibly deviating reed corrected.

6. Measurements on a „halved“ instrument

In order to check the tuning with built-in reed blocks / reeds, the instrument, may be an accordion, a harmonica or a bandoneon, is divided into three parts.

In the following we speak of the accordion; the other instruments are to be treated in the same way.



The treble half is placed on the AKKOtune together with the bellows and fixed with the two lateral hold-downs.

If there is no point that corresponds to the maximum height of the hold-down devices, a bridge is placed across the instrument and the lower-

lying side

surfaces are pressed down with the hold-down devices. This is necessary because otherwise the blower lifts the instrument a little in PUSH mode and the air escapes to the side.



The arms with the hold-downs can be moved on the table top and are fixed with the star grip screws.

There are several threaded holes in the table top - the star grip screws are used for both the reed block guide and the hold-down arms.

If the edge of the bellows' rim is level and smooth, the tuning table cover provides a good air seal.

If the edge is uneven, an elastic foam mat can be placed in between to seal the unevenness.

Proceed accordingly with the bass side.



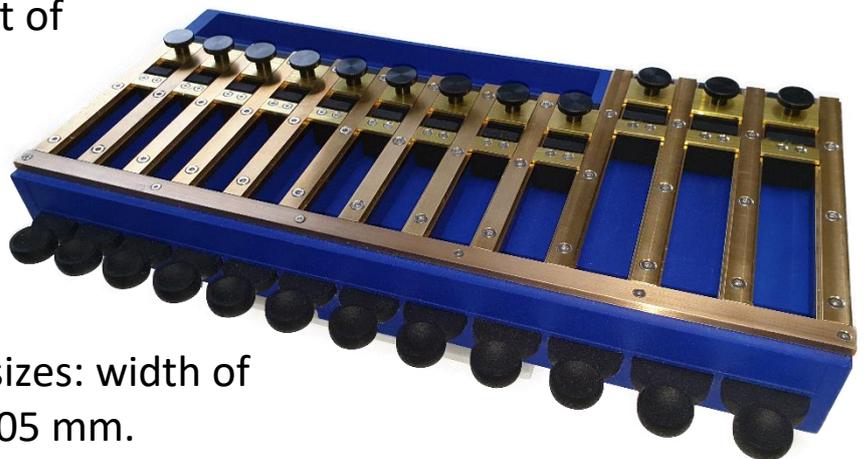
The instrument is now ready to be played through completely. You can switch all registers and operate all keys or buttons normally.

7. Tuning single reed plates in the Multiholder (option)

In order to make individual reed swing freely and to be able to pick up their correct tone, the reed plate must be embedded in a holder that enables the valve to open downwards. If you use a reed plate with two reeds, the lower reed is active with PUSH, the upper reed with PULL.

So in order to hear a reed and then to tune it immediately, you should start PULL and may manipulate the reed on top. If the reed plates are not yet ventilated, the slot of the reed below can be closed with an adhesive strip.

The holder for individual reed plates can accommodate different sizes: width of 15-25 mm, length of 15-105 mm.



With the slide open, the reed plates are laid flat in the brass guide rails, the slide is pushed against it and locked with the knurled screw.

The reed plate is now largely airtight in the holder. The air supply / discharge takes place from below.

Each guideway has a slide valve that releases the air flow. You can insert up to three reed plates in adjacent tracks, and measure and adjust their beat. The reeds can be tuned directly when the plates are inserted.

8. Worktop with integrated microphone signal output via USB port (optional DESK+)

Versions 3 and 4 of the AKKOtune tuning table have optional worktop with an integrated USB connection, a gooseneck microphone in the rear area and a microphone in the blowhole. On the right front edge of the cover plate there are 3 flush buttons for selecting the active microphones.

The circuit becomes active as soon as a USB cable connected to a computer is plugged in from below.

The then active microphone (Mic1, Mic2 or Mic 1 + 2) is indicated by LEDs.



The gooseneck

microphone has a connection cable with a 3.5mm jack plug that is plugged into a

socket in front of the screwed-on base.



The microphone amplifier with automatic gain control is integrated in the head of the gooseneck or in the blowhole. The 3.5

mm jack socket is not suitable for connecting normal microphones. The plug needs to be pushed in firmly.

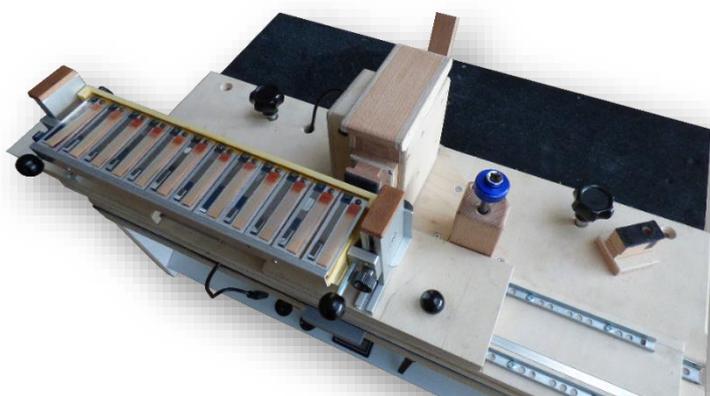
9. Usage of a gooseneck with microphone holder

If you use a top plate without the integrated microphones you can screw an optionally delivered 50 cm (20") long gooseneck with microphone clip at the rear area of the top plate.

10. Replacing the worktop leather cover

If for any reason the cover of the worktop is worn or torn it may be replaced by a new one. In this case the new one is equipped with adhesive stripes and can be placed easily on the polystyrene top plate.

11. AKKOblock – direct tuning device for reed blocks (option)



AKKOblock enables you to tune reed plates directly in the reed block.

The blow module (hole) is vertically placed opposite the reed block bottom and can be tilted backwards before shifting the reed block sideways, A

large rocker switch stops or enables the air flow and also tilts the blow module backwards.

The reed plates lie horizontally in front of you and you can tune the reeds with the usual methods and measure them immediately again.

The tone frequencies are detected with two microphones inside and outside the blow module and can be sent to a computer via USB.

The blow module has a receptacle for various blow hole inserts, holding magnetically.

An optional hand rest can be plugged in to the device's base plate and gives support to the workers hands while tuning reeds

A separate manual explains handling of the AKKOblock device in detail.



12. Insert AKKOtune into a work bench

Except plugging in DC power all handling for operating the AKKOtune tuning table is at the front panel and on top.

As the top plate has a 9 mm protrusion on both sides it is possible to fit it into a workbench gap.

The cut-out size in the workbench shall be 600x380 mm (23 5/8" x 15"). in order to have flush workbench surface the supports on both sides need to be that distance below the workbench surface as the thickness of the top plate including coverings (this can change due to further developments)

13. Technical Data

- Air Stream: constant after placing the test object;
Start / Stop via switch
- Air Pressure: electronically set/measured/displayed;
0.2 mbar (20 Pascal) up to approx. 10 mbar (1 kPa)
(limited electronically to 7.5 mbar)
- Power Supply: Leicke NT03012, 60W 12V 5A, 100-240 VAC, 50-60 Hz
2 m power cord with Euro plug and on/off switch
- Weight: 14 kg (excluding accessories)
- Dimensions: Width 600 x depth 380 x height 195 mm
(23 5/8" x 15" x 7 19/32) Tabletop with 9 mm
protrusion on both ends (for fitting into workbench);
33mm thick including leather covering.

14. Accessories

- Air Vent Inserts: 2x round hole 8 mm and 14 mm
1x slotted hole 8 x 35 mm
1x large hole approx. 45 mm for usage with
whole instrument testing (treble or bass)
1x no hole for own design (option)
- Multiholder OPTION: 1x for single reed plates, width 15-25 mm
and length 15-95 mm flexibly adaptable
- Reed Plate Guide: 1x adjustable wooden guide (stop bar)
to be fixed with 2x star knob screws
- OPTION 1x as above, with adjustable hold-downs
and accessories (extension and pressure roller)

Accessories *continued*

Instrument Fixation: 2x shiftable arm with adjustable hold-down,
(use screws from reed block guide)

1x transverse bracket
for high instruments/bass part with bellows

1x tightening foam mat for uneven bellows rim

Gooseneck OPTION: 1x gooseneck, 500 mm, with basis and mic bracket

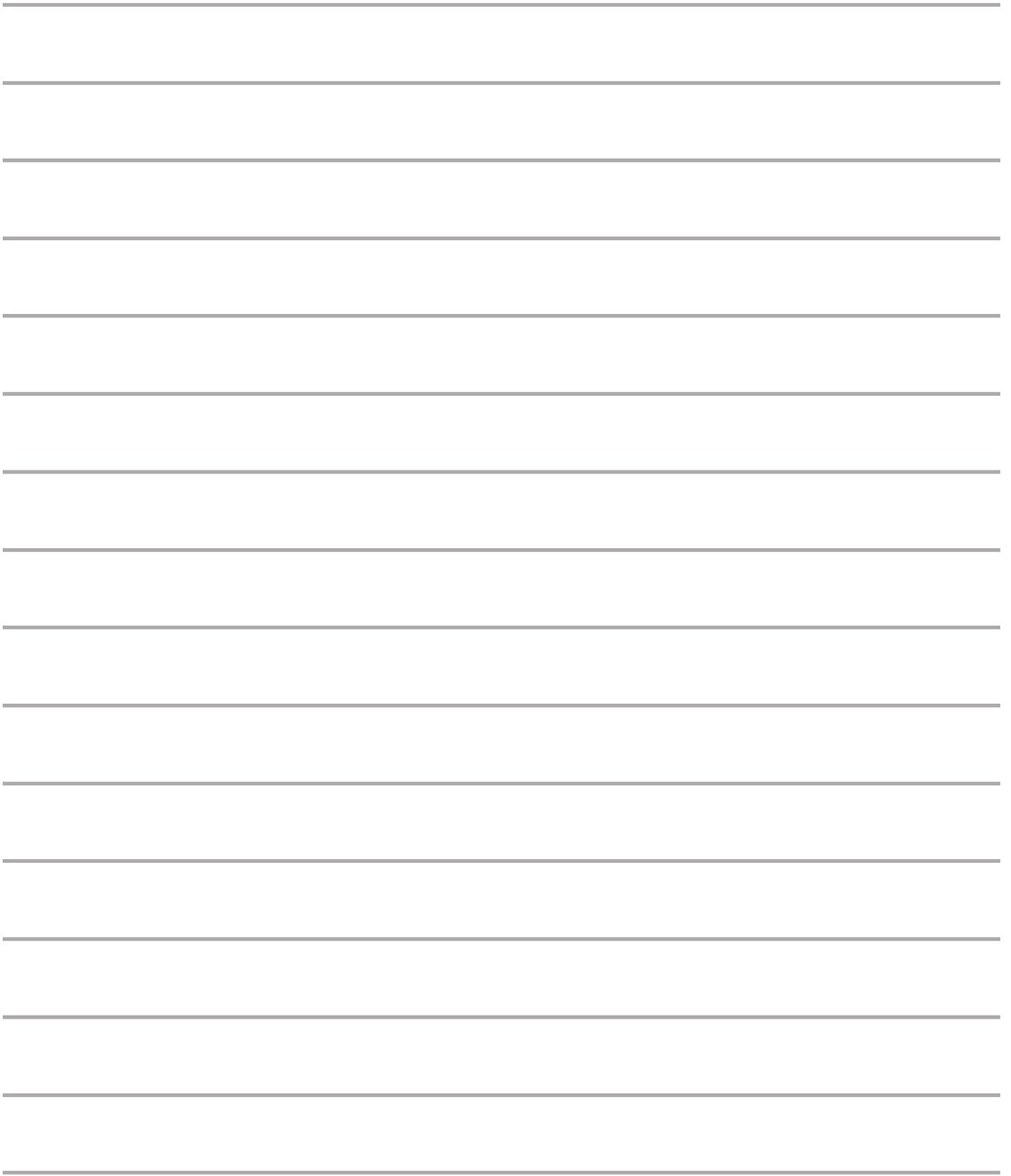
DESK+ OPTION: 1x Worktop with integrated microphone
underneath the blow hole and connection for
gooseneck microphone central in the rear area.
Both mic signals selected with push buttons on
the front and transferred via USB output.

AKKOblock OPTION

Reed Block Tuner 1x Horizontal fixation for reed blocks of various
sizes. Sideways shifting in front of a vertically
positioned blow module/hole.

This enables direct tuning of the horizontally
presented reeds and immediate testing the
tuning by switching the air stream ON.

Large rocker switch on top the blow module ‘
for air and blower stop. Two microphones
positioned in and outside the blow module
transfer detected tone frequencies to a
computer via USB.





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