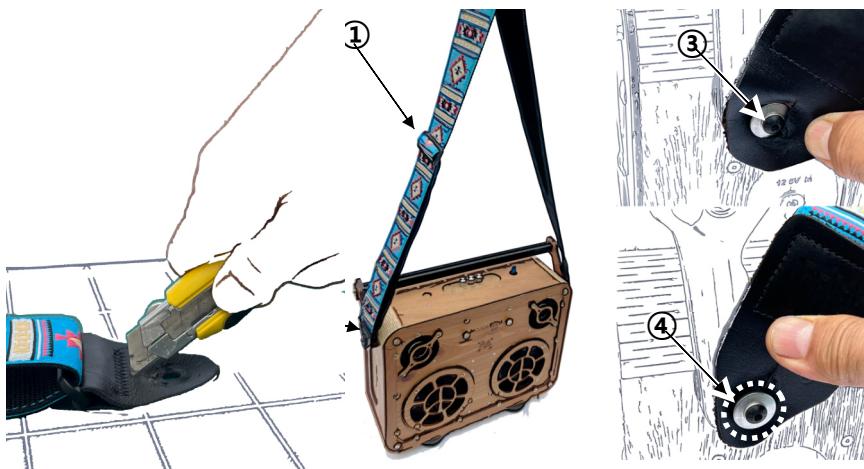


## MOJOFESTO (DIY Kit)

# Operation and Customization Guide

2/27/2024



### Sections:



## A. Operation

- ▶ Turn On
- ▶ Tune Up
- ▶ Rock Out

## B. Customization

## C. Afterward



## Power it On and Connect

After kit assembly is complete, follow these steps to bring up the boombox and play music on it. Congrats. This is the moment!

- ▶ **Pre-set the volume knobs:** The knobs are labeled on the top panel (typically: from left to right – Treble, Bass, Main). Turn the Treble and Bass knobs to 12 o'clock and the Main Volume knob to 9 or 10 o'clock.
- ▶ **Turn on the kill switch** (toggle towards box back): The light on the switch glows. The speakers make a startup tone.
- ▶ **Pair to a bluetooth source:** Using a bluetooth-enabled device, such as a smartphone or a laptop computer, open up the settings > Bluetooth, and add device. Connect to MAKEBOOMBOXES on the list of available Bluetooth devices.
- ▶ **Play some music:** On the music player device, open a music app, for example: Spotify, Tidal, Apple Music, Soundcloud, Qobuz etc. (any app that plays sound) Play some music.
- ▶ **Volume control:** Overall volume is affected by all of these factors: The recorded song loudness, the player device main volume, the player app volume, the volume knobs on the boombox.



## Aux Audio Input

- ▶ You can play audio via the Aux Input jack on the side of the boombox. The jack is 3.5mm stereo, line level.
- ▶ When there is no Bluetooth connection, the Aux audio input becomes the active input.
- ▶ Aux volume will be determined by the output level of the source device AND the volume control knobs.



### Troubleshooting:

- The kill switch doesn't light when toggled on:** Battery pack needs to be charged.
- Kill switch lights up, but no startup tone is heard:** Amp board needs to be switched on (if it has a separate power switch) and the volume knob turned up. The battery pack needs to be charged to supply at least 9V power to the amp.
- Kill switch lights and startup tone is heard, but no boombox ID seen in Bluetooth settings:** Another device may already be connected to the Bluetooth making it unavailable. While any device is Bluetooth connected to the boombox, the amp board will stop announcing its Bluetooth ID available for pairing. To free up the boombox Bluetooth to connect to a different device, disconnect the boombox Bluetooth, or turn off bluetooth entirely on the other device.
- Sound does not play:** The box makes a startup tone and the player app shows the play head moving and time counter advancing but there's no sound ... Confirm the player app has the boombox Bluetooth selected as the output device. ... Check that the device volume and app volume are turned up.



Online  
Guide:

<https://mkbx.info/festo-powerup>



## Sound Check Your Best Tone

Once the boombox is able to play audio via Bluetooth, go ahead and play a variety of songs to get a feel for this new instrument of sound amplification. Its a common experience once the music plays for the first times to want to hear your favorite songs to experience what they can sound like on this beautiful hand-made boombox. Its an amazing feeling, and also amazing to share the soundcheck with friends.

- ▶ **Player app on 80%:** Turn up the player device main volume to about 80% which gives room to go up or down without compromising sound quality, and then...
- ▶ **Turn up the boombox main volume knob slowly** until the general desired listening level is reached.
- ▶ **Max the treble to ride the bass.** Bass is the biggest variable to dial in at different overall loudness levels. To keep operation simple at any volume, we suggest turning up the treble dial all the way and then ...
- ▶ **Dial in the bass to fit the overall loudness.** At low volumes, the ear is less sensitive to bass sounds. We compensate for this effect at low volumes by adding more bass with the bass knob. At high overall volumes where the ear is more sensitive to bass, we turn down the bass knob until it sounds right to you.
- ▶ **Play a range of favorite songs across various different genres.** We know how we want our own music to sound. It's also good to ask others for their song picks to check and get their opinion... does it sound the way they want it to?



### Push the Limits:

Once you're familiar with dialing in the sound, it's interesting to explore the performance limits of the boombox. Stress testing is best done when the battery pack is fully charged for maximum power to the drivers. Play songs that are challenging to reproduce, for example, with heavy bass, very full-spectrum (has high overtones, rich mid-tones and low bass notes), highly percussive instruments, wide dynamic range (the difference between the quietest and loudest).

Make small tone adjustments at a time to let the ears adjust to the changes. Find the tone and volume settings that work well for particular songs, artists, genres.

- At what loudness does the sound loose fidelity?
- Do the woofers choke out or distort?
- Do high pitched sounds distort?
- Are there unpleasant vibrations from the box?
- What songs / genres are most pleasing on this box?
- What songs / genres sound less than great?



### Timing and Safety:

Sound checking for a long time can fatigue or over-adapt the ears. Taking periodic breaks from listening can help re-calibrate hearing back to "normal" to perceive tone with less bias when reusing the sound check. Please take care of your listeners' ears. Loud volume and long duration of exposure both add to the risk of hearing loss.



Online  
Guide:

<https://mkbx.info/festo-sound-check>



## Find and Fix Unwanted Vibrations

If your DIY kit exhibits unpleasant vibrations, buzzing, rattling, etc. this is the way to investigate and troubleshoot.

- ▶ **Test at high volumes with bass heavy sound:** The most common source of distorted sounds comes from the physical components vibrating, more likely than the battery or amp or speaker drivers getting overdriven or pushed beyond their capacity.

Parts of the box enclosure and hardware may begin to vibrate against each other at the joints, fasteners, abutting surfaces, etc. thus making a buzz that's a buzz kill to the music.

- ▶ **Isolate bad vibes:** Listeners feel disappointed when they hear rattles, or thumps, or chatter. Distracting noises typically resonate more at certain volumes and tones, or only on certain parts of some songs. It can take some trial and error to localize elusive bad vibrations. By knowing the common culprits, we can find and fix them systematically.



### Check the Likely Suspects for Buzzing:

- Box is vibrating against an external object
- Art Face chattering on mounting magnets
- Loose external screw(s) allowing vibration / chatter of borders / soundboard / backboard / expansion panel
- Loose Art Face magnet mounting bolt(s)
- Loose panel nut on power jack, or volume knobs or accessories
- Cracks or gaps caused by damaging events such as: impact/dropping, moisture/water exposure, extreme changes to humidity or temperature
- Full-range speaker drivers chattering against the soundboard or mounting nuts
- Loose handle axle or broken bearing is vibrating in the handle bearing pocket
- Loose hardware inside the box:
  - Loose wires or connectors
  - Battery has broken free from battery mount and is flopping around freely inside box
  - Handle axle nut is loose or fallen off inside box
  - Speaker mounting nut(s) loose or detached



Online  
Guide:

<https://mkbx.info/festo-buzzing>



# Charge the Battery

- The kit battery comes with a specific wall power adapter ① that indicates the battery charging status.
- When the adapter is plugged into the wall and its wire is plugged into the boombox wall power jack ②, the LED light ③ illuminates red when charging, and green when fully-charged.

# Check the Charge Level

- To check the charge level of the internal battery, press the USB Power Out jack's operation ④ button.
- The voltage displayed ⑤ will be over 12V when fully charged. At less than 9V and the amplifier turns off.



## Power USB Devices

- Remember to turn off the USB Power Out jack to save power when not using (press the same button ④ again).
- To power / charge external USB devices like a smart phone, plug the device into one of the USB jacks. (These do not carry digital signal.)
- USB type A or Type C cables can be plugged in to receive charging power.
- External USB devices will only be charged / powered when the USB Output jack is

## ⚠ Important:

**Note:** The internal battery in this boombox is powered on all the time. This allows the USB power output jack to operate regardless of the kill switch being on or off

After being unplugged for several days, the boombox will drain out.

It's recommended to keep the boombox plugged in when not in use so it will be fully charged and ready for portable use.

## 🔍 What if I lose it?:



If the charging adapter gets lost, substitute another one that meets the specification below or order a new replacement here:

<https://mkbx.info/12.6v>

## Substitute Charger Specification:

Barrel Plug: 5.5mm x 2.1mm  
Plug Polarity: +inner, -outer  
Voltage Out: 12.6V  
Wattage Out: .5A to 2A



Online  
Guide:

<https://mkbx.info/festo-chargingjack>



## Optional Guitar Strap Attachment

- ▶ Decide on which shoulder the optional guitar strap's length adjustment will ① sit. This is purely a matter of taste and can be easily reversed later.
- ▶ For each of the guitar strap ends ②, fit them over the guitar strap flange ③. Pull strap end so the entire flange comes completely through the hole ④.
- ▶ If the strap end does not fit over the guitar strap flange, then slightly widen the guitar strap openings ⑤ carefully with a sharp knife ⑥ or wire nippers
- ▶ Adjust the strap length to sit comfortably on shoulder and/or across the chest



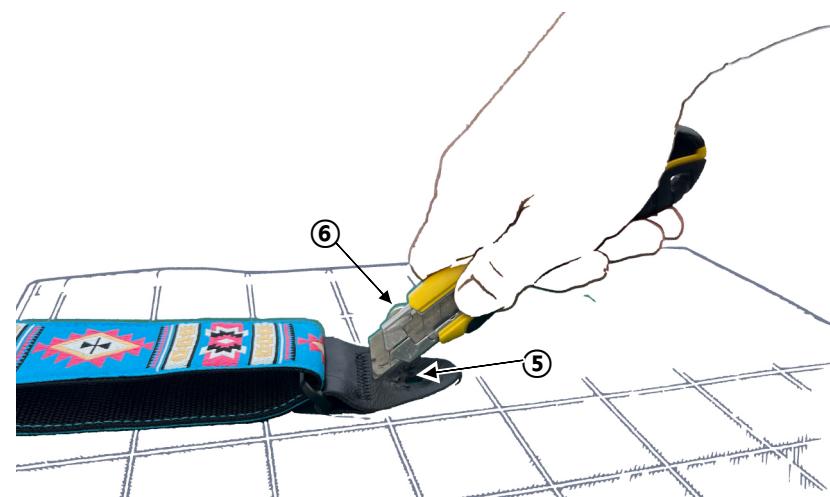
**Tools:** X-acto knife or box cutter to widen the strap openings if necessary

**⚠ Safety First:** If widening the strap end holes is necessary to attach the strap, place the strap on a cutting board surface and cut downward through the strap end to the cutting board. DO NOT CUT TOWARDS YOUR HANDS.

### Check:

- The guitar strap ends are fully securely buttoned onto the strap buttons
- The strap ends are buttoned right side out.
- The guitar strap is oriented the desired way. It can be convenient to put the length adjustment closed loop end of the strap on the side of one's dominant hand (when the box is worn forward)

**⚙ Options:** Any guitar strap can be optionally adapted to this purpose. Please support the artists of the MAKEBOOMBOXES.com art gallery by browsing there for hand-made guitar straps.



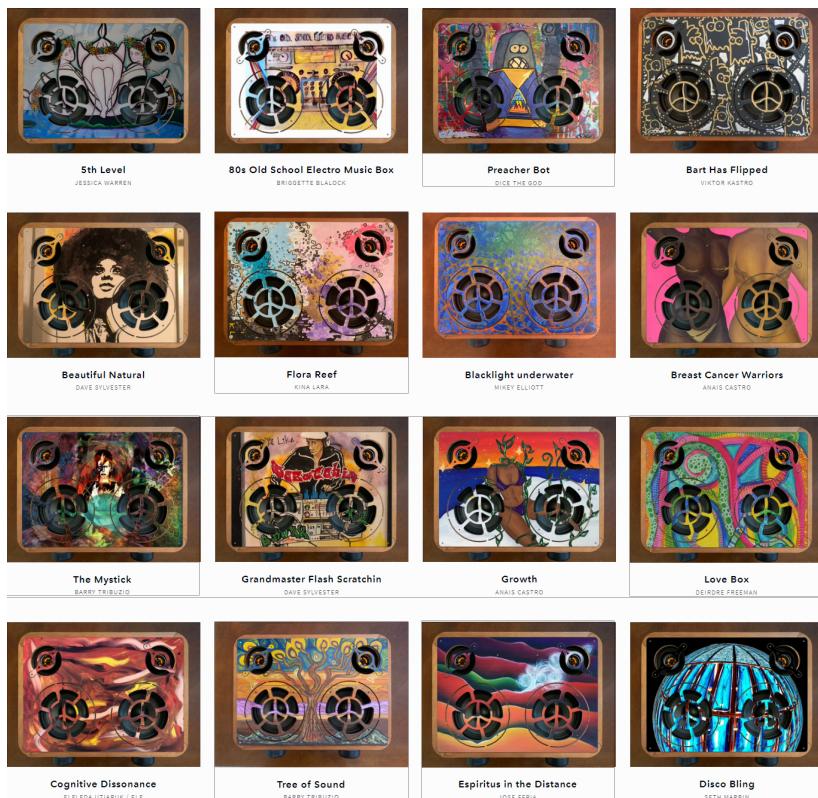
**Online  
Guide:**

<https://mkbx.info/festo-guitarstrap>



## Optional Art Face Add-ons

- ▶ Rad art and designs that magnetically click to the front of the boombox
- ▶ Refresh the look of the box with today's vibe
- ▶ Any colors and textures
- ▶ Any image and style
- ▶ Any message
- ▶ Any time



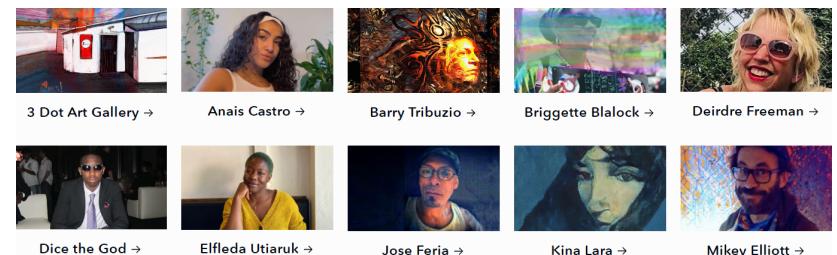
### ⌚ Timing:

Art Faces can be purchased whenever – with or without a boombox by MAKEBOOMBOXES to attach them to. Art Faces look great whether displayed on your boombox, or on your walls. Visit the link on the facing page to view the growing gallery of Art Face add-ons.



### Support Community Creativity!

- This is a new way that working artists can sustain their visions and create more beauty on boomboxes
- Buy original hand-painted or digital print Art Faces by brilliant artists selling in the online gallery marketplace
- Custom Art Faces can be commissioned for your imagination, or your company, your team, etc.



### Explore Your Inner Boombox Artist!

- Paint your own art on an Art Face blank made of white or black canvas panel or smooth hardboard
- Print-on-Demand: Upload your image file, and then we print and ship you your custom Art Face add-on



### Artists Invitation:

All Artists and art galleries are welcome to sell hand-painted or digital print Art Faces in our online marketplace for a generous revenue share. If you're interested for yourself, or you know other artists whose work could resonate on beautiful handmade boomboxes, this link is where artists can learn how to create and sell Art Faces.



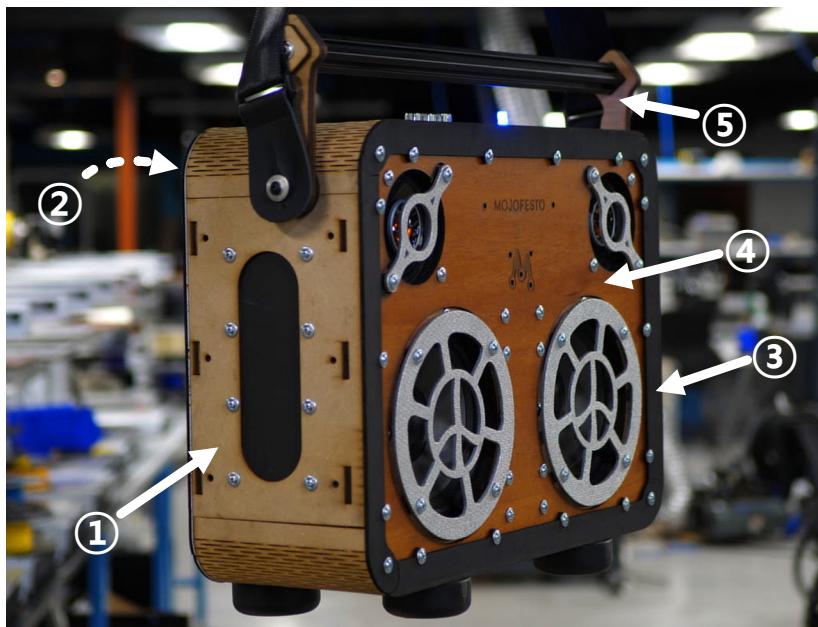
Online  
Gallery:

<https://mkbx.info/artface>



## Optional Custom Painting

- ▶ Any color scheme can be optionally applied to the chassis shell ①, backboard ②, borders ③ and even the speaker covers ④ and handle arms ⑤.
- ▶ Custom painted skinning can combine simple flat colors, textures and/or intricate hand-made paintings.
- ▶ The border pieces ③ are reversable with a smooth side and rough side -- either or both sides can be painted as desired.



### ⌚ Timing:

Skinning can be done in stages. The box can be re-painted over and over. Skinning can take as little or as much effort as you want -- as long as the paint (and/or glue) is let to dry enough before handling.

### 💡 Ideas for Painted Finishes:

The parts already mentioned will look great with a carefully applied hand-brushed paint finish. Or, try any indoor/outdoor spraypaint. Some spraypaints will coat more evenly and dry faster than others. Multiple thin coats of paint works better than fewer thicker coats. Priming with gesso or primer can make top coats more vibrant. Try out paint combinations on scrap material before committing to them.

### ✓ Check out more customization options:

- For fully custom skinning, visit the [MAKEBOOMBOXES.com](#) custom shop
- There, your designs, photos, etc. can be ordered on boombox parts "print-on-demand"
- Fully custom-branded boomboxes can be licensed via the OEM service
- Original and reproduction art faces made by brilliant artists are available in the online gallery

### 🔍 Zoom Out:

This step is about painting, but skinning can also be done with fabric, paper collage, printed images, etc. glued on with contact cement, spray adhesive or similar.

Creative options are virtually unlimited with skinning and customizing these devices. Your design is welcome to be shared with the growing community in the showcase of beautiful, custom boomboxes at [makeboomboxes.com](#).



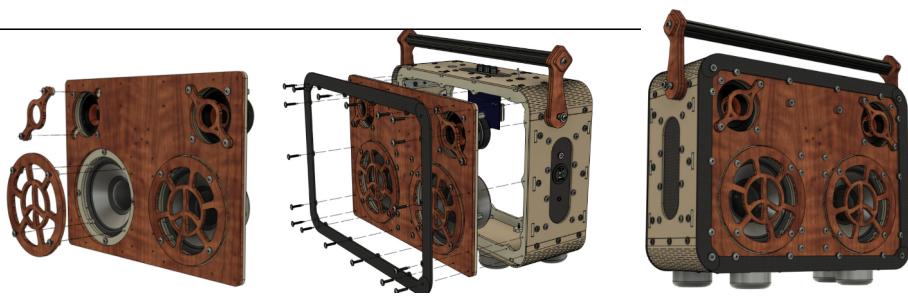
### Online Guide:

<https://mkbx.info/festo-custompainting>



## Change the Game With Boomboxes

- ▶ **What's the Point of Creating? To Inspire!** We want to see a future of compatible boomboxes and fun add-on inventions that are MOJOFESTO-compatible.
- ▶ **Let's Join Forces.** At [makeboomboxes.com](http://makeboomboxes.com) you get a community and a design framework to change the game. Share your skills and inventions, and connect with people who care about the realness in the music.



- ▶ **Register your build or customization.** If you built a boombox that checks all the checklists, that makes you a bona fide MOJOFESTO builder. Then if you want, you can become a certified build partner and even sell your own branded boomboxes and/or add-on accessories at [makeboomboxes.com](http://makeboomboxes.com).
- ▶ **Where do I share?** Community is where we build together and build better. The builder and user community is online at [makeboomboxes.com](http://makeboomboxes.com) and on major social networks as @makeboomboxes. Please join the community and share beyond.
- ▶ **Please share on social** as you make and use your makeboomboxes: tag #makeboomboxes on your posts, stories, videos, comments, etc.

- ▶ **Open source standards.** The open source standards of makeboomboxes grants anyone the freedoms to enhance this boombox with new visions and uses, and responsibilities to share improvements back to the community. <https://mkbx.info/opensource>
- ▶ **MAKEBOOBOXES designs** and specifications for creating accessories are open sourced in the hopes that together we can make these better, spread the word, and collaborate more.
- ▶ **For commercial licensing:** contact [noel@makeboomboxes.com](mailto:noel@makeboomboxes.com), 510-463-4647



**Online  
Community:**

<https://makeboomboxes.com/>





**Online  
Guide:**

## Notes:

## Fin

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| Software             | not applicable |
| Documentation        | CC-BY-4.0      |



Full open-source project with licensing details:  
<https://mkbx.info/festo-opensource-license>

This project is certified  
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