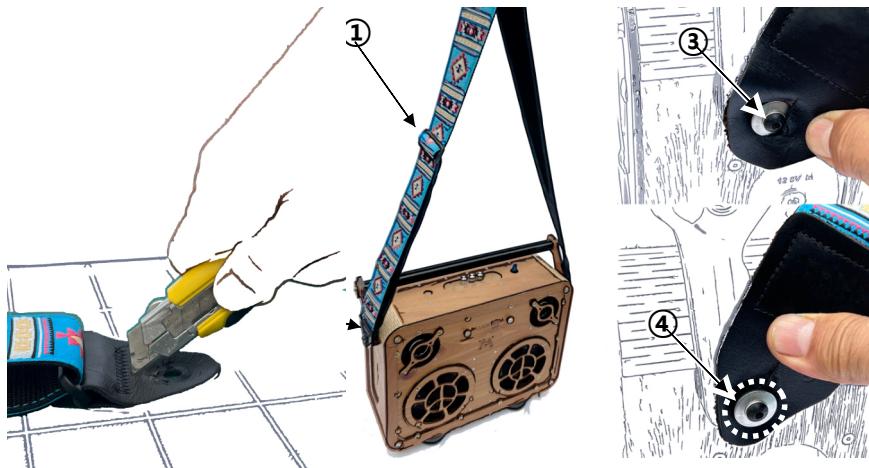


## MOJOFESTO

# Operation and Customization Guide

4/23/2024

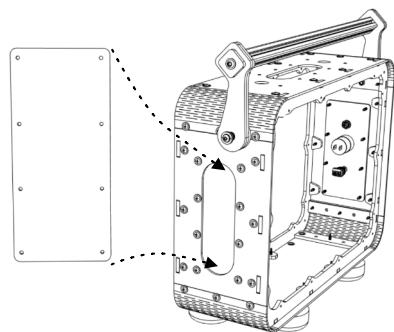


### Sections:

## A. Operation

- ▶ Turn On
- ▶ Tune Up
- ▶ Buzz it Out

## B. Customization



## Power it On and Connect

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 smart phone, open up the settings > Bluetooth, and add device. At the time of this writing, the device name shows up as BT-WUZHI in the list of Bluetooth devices. This may be different for your boombox. See your included release notes.
- ▶ **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.



### Troubleshooting:

- The kill switch doesn't light when toggled on:** Battery pack needs to be charged. *Internally*: Power switch on the battery pack may need to be on, depending on the type of battery in use. Battery needs to be connected to kill switch.
- 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. *Internally*: The amp board needs to be powered, functioning and connected to the speakers.
- 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, in the settings of the paired device, either disconnect the boombox Bluetooth, or turn off bluetooth entirely. This should return the boombox to Bluetooth pairing mode.
- 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 from the boombox ... Check that 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

Sometimes good vibes can become too much of a good thing. Boomboxes like MOJOFESTO are super cool because the body of the box is hand-made, and in some cases re-purposed from luggage, toolboxes, etc. This lends originality and personal connection to the design. But, because these types of sound enclosures are not hermetically sealed plastic, but rather are compound structures with modular wooden parts and removable fasteners, they may develop unwanted vibrations.

- ▶ **Maximum volume of the boombox:** When raising the volume level, the most common source of distorted sounds comes from the box itself, even before the battery or amp or speaker drivers get overdriven or pushed beyond their capacity. Parts of the box 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.
- ▶ **Isolating any 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 floaring 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>



## 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

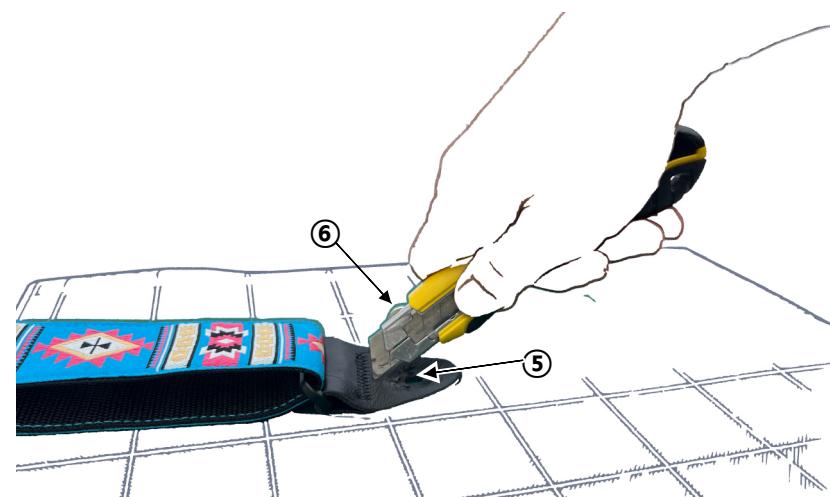
**⚠ Safety First:** If widening the strap end holes is necessary to attach the strap, place the strap on a cutting board surface and cut downward through the strap end to the cutting board. DO NOT CUT TOWARDS YOUR HANDS.

### 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.



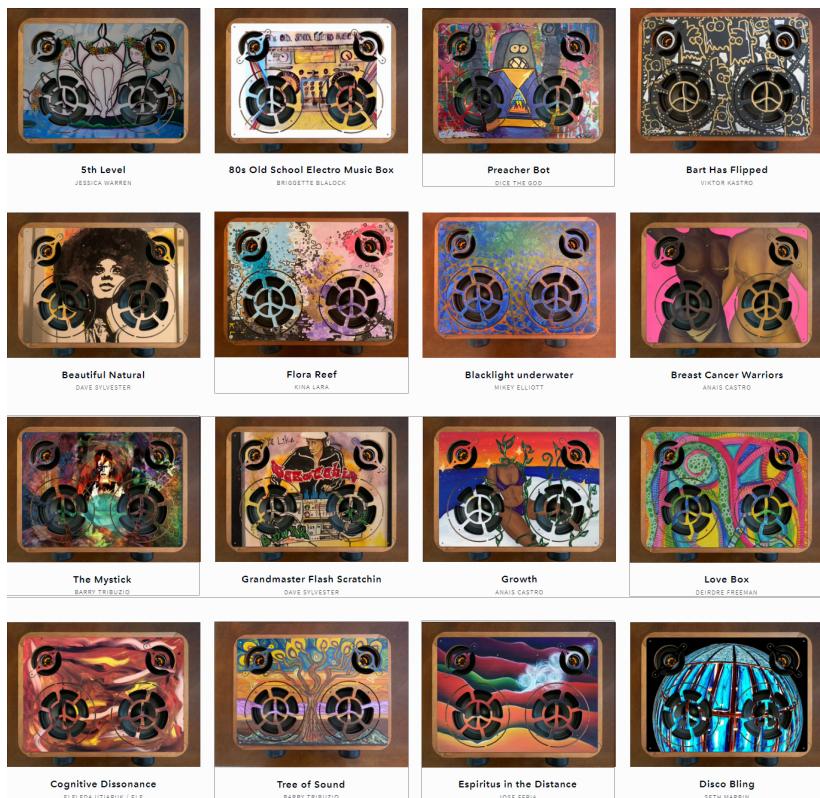
Online  
Guide:

<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



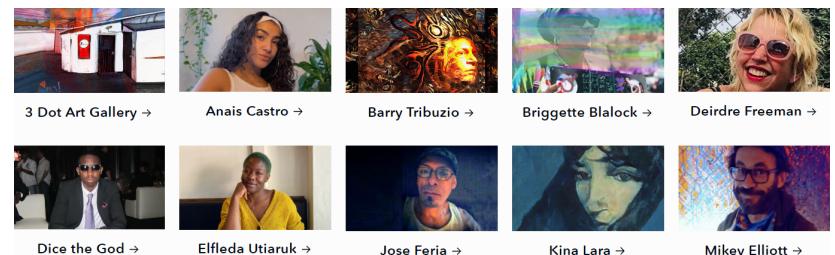
### ⌚ Timing:

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.



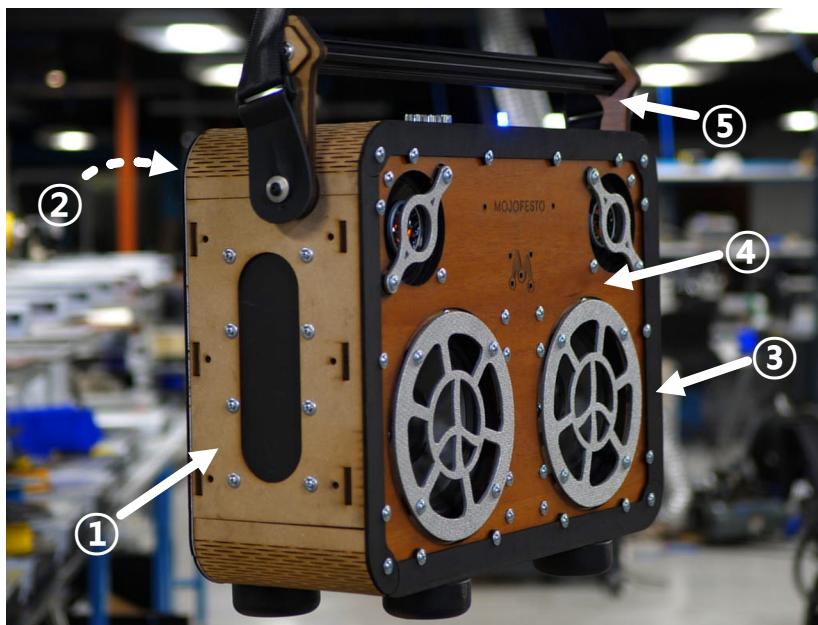
Online  
Gallery:

<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](#).



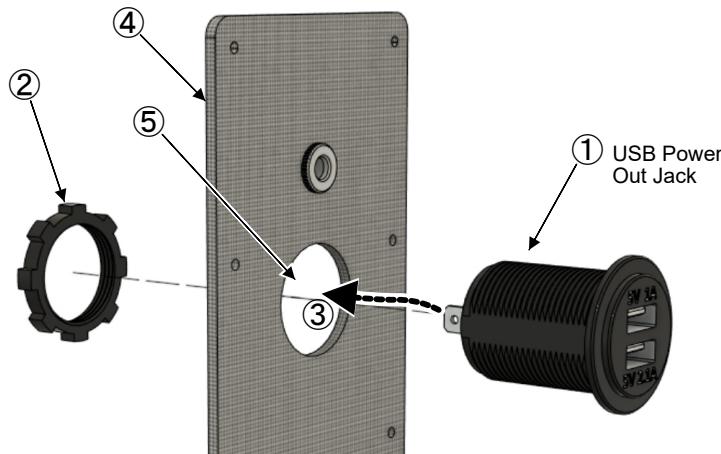
### Online Guide:

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



## Installing Optional Aux In and USB Power Out

- ▶ Mount the USB Power Out jack ① as follows. (See the full checklist in the Assembly Guide Part I or II)
  - ▶ Remove USB Out jack's nut ②
  - ▶ Pass the wire terminals ③ (wire harness not shown) through the right side panel ④ USB Out jack mounting hole ⑤.
  - ▶ Seat the USB Out jack in mounting hole
  - ▶ Pass the wire terminals through the nut
  - ▶ Thread and tighten the nut by hand and tighten fully with a toothed pliers



### Other Options:

Blank expansion panels and add-on accessories are available online at [MAKEBOOMBOXES.com](https://MAKEBOOMBOXES.com). Or, fabricate a blank panel using the specification in the next pages.



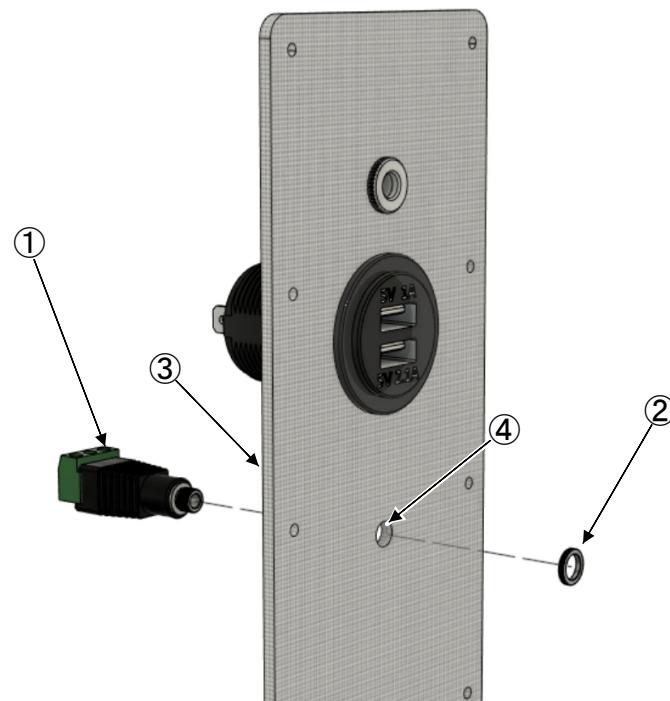
#### Online Guide:

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



## Mount the Optional Aux In Jack to the Right Panel

- ▶ Mount the optional Aux In jack ① as follows. (See full checklist in the Assembly Guide Part II)
  - ▶ Remove the Aux In jack's nut ②
  - ▶ Seat the jack from the inner side of the right panel ③ mounting hole ④
  - ▶ Thread and tighten the nut by hand and tighten fully with a toothed pliers



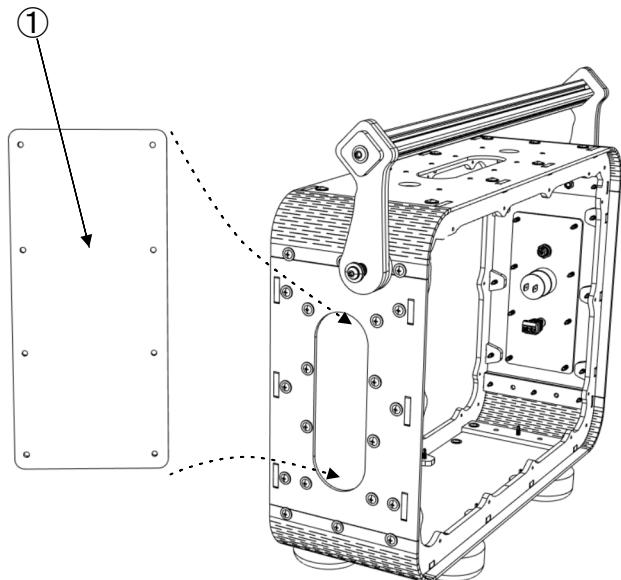
#### Online Guide:

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



## Optional Custom Expansion Panel

- ▶ The expansion panel ① allows DIY or after-market accessories to be installed/upgraded in the boombox.
- ▶ Most electronics devices have a closed design. But MAKEBOOMBOXES is an open design, inviting expansion, invention, experimentation.
- ▶ Because the modular expansion panels are easy and cheap to replace, they provide a low-risk location to drill holes, mount home-made prototype add-ons, etc.
- ▶ Replacement left/right panels are available online or fabricate your own using the specification ②



Add-on accessories that mount in the left (or right) expansion panel are available at the online store: [MAKEBOOMBOXES.com](http://MAKEBOOMBOXES.com).

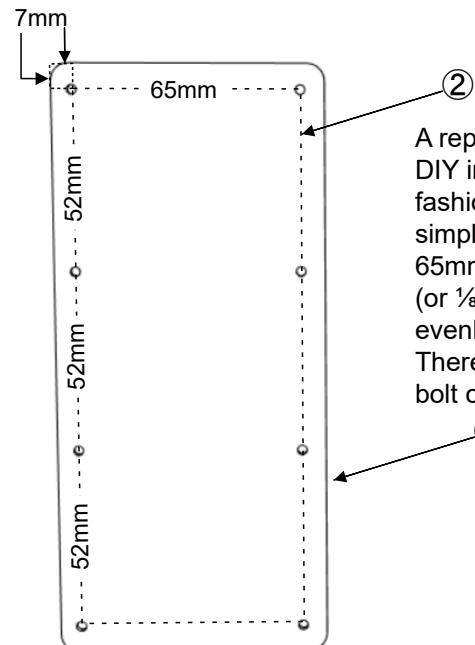
**Tools:** The expansion panels are 3mm ( $\frac{1}{8}$ ") thick. Holes are easily drilled in them with a power drill. Consider laser cutting the panels if very precise location or non-circular openings are needed.

**Tips:** Do the inventing / prototyping on a throw-away panel piece instead of the nice finished one on the boombox. Once your design is tested / proven on a throw-away panel, then reproduce it on a permanent one.

### Check

- Custom, or after-market add-ons mounted to the expansion panel are fully tight and mounted securely
- Add-ons do not obstruct or vibrate against other components inside the boombox

### Specification



A replacement left/right panel for DIY inventions can be easily fashioned if needed. The spec is simple: the bolt rectangle ② is 65mm x 156mm. The eight 3mm (or  $\frac{1}{8}$ ") mounting pilot holes are evenly spaced as illustrated. There is a 7mm offset from the bolt circle to the panel edge ③.



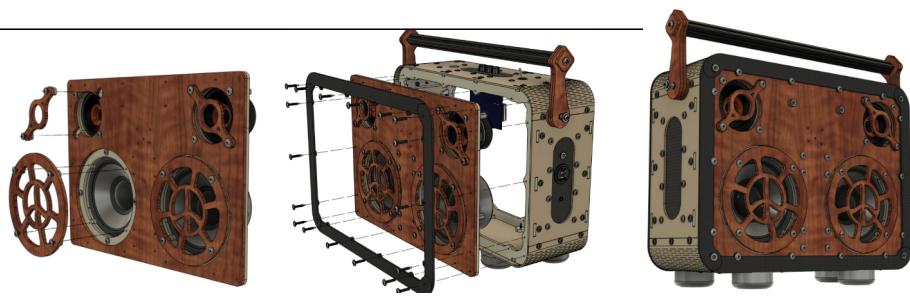
Online  
Guide:

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



## 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 boomboxes grants anyone the freedoms to enhance this boombox with new visions and uses, and responsibilities to share improvements back to the community.
- ▶ **MAKEBOOBOXES designs** are open sourced via non-commercial licenses and published accessory specs 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/>



## Notes:

Fin

Copyright 2024 Noel Rabinowitz.

End user license agreement: This is a human-readable summary of (and not a substitute for) the license. The enclosed design and documentation material is available to the public under the Creative Commons open source license version: Attribution-ShareAlike 4.0 International (CC-BY-SA-4.0). By using the material, the user is agreeing to the terms in <https://creativecommons.org/licenses/by-sa/4.0/>. In short, users are free to: Share — copy and redistribute the material in any medium or format for any purpose, even commercially. Adapt — remix, transform, and build upon the material for any purpose, even commercially. The licensor Noel Rabinowitz cannot revoke these freedoms as long as you the user follow the license terms: Attribution — You must give appropriate credit, provide a link to the license, and indicate if changes were made. You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use. ShareAlike — If you remix, transform, or build upon the material, you must distribute your contributions under the same license as the original. No additional restrictions — You may not apply legal terms or technological measures that legally restrict others from doing anything the license permits. Contact: [noel@makeboomboxes.com](mailto:noel@makeboomboxes.com), 510-463-4647

