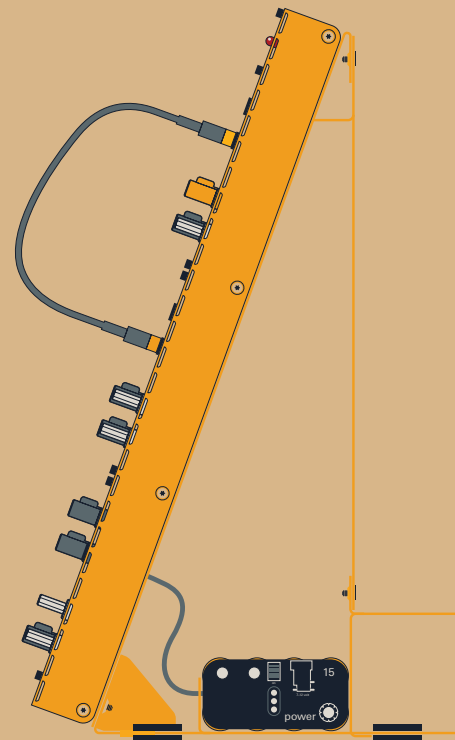
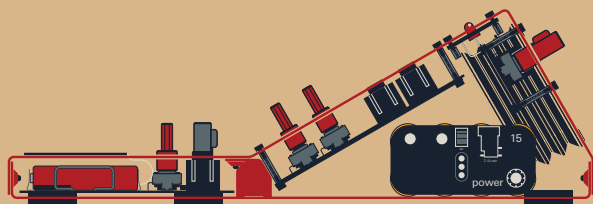
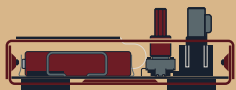


pocket  
operator™  
modular

モジュラー



16

170

400

# symbols

learn the meaning of the symbols on the opposite page before you start building.

es ist wichtig, das zu lernen bedeutung dieser symbole bevor sie anfangen zu bauen.

il est important d'apprendre le signification de ces symboles avant de commencer la construction.

è importante imparare il significato di questi simboli prima di iniziare a costruire.

各シンボルの意味について事前に別ページの記載を確認の上、組み立てを開始してください。

# bending



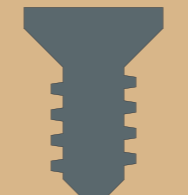


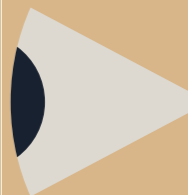



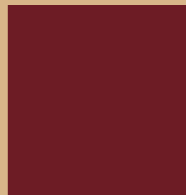

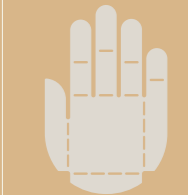
use a desk or similar as a support when you bend the sheet metal and its flanges. pay close attention to the direction of the bends before you bend as you only have one attempt before the support tabs loose their strength and you may rip the part.

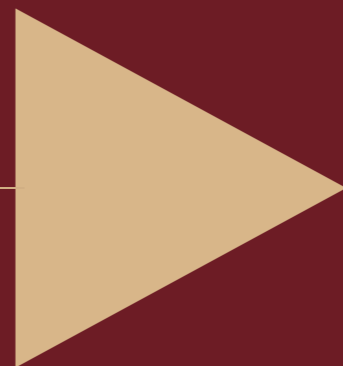
erwenden sie einen schreibtisch oder ähnliches als unterstützung, wenn sie das blech und seine flansche biegen. achte genau auf die richtung der biegungen, bevor du dich biegst, da du nur einen versuch hast, bevor die stützlaschen ihre stärke verlieren und du sie reißen kannst..

utilisez un bureau ou un support similaire lorsque vous pliez la tôle et ses brides. portez une attention particulière à la direction des plis avant de vous pencher, car vous n'avez qu'une seule tentative avant que les pattes de soutien ne perdent de leur force et que vous ne puissiez les déchirer.

utilizzare una scrivania o simile come supporto quando si piega la lamiera e le sue flange. fai molta attenzione alla direzione delle curve prima di piegarti, poiché hai solo un tentativo prima che le linguette di supporto perdano la loro forza e potresti strapparle.

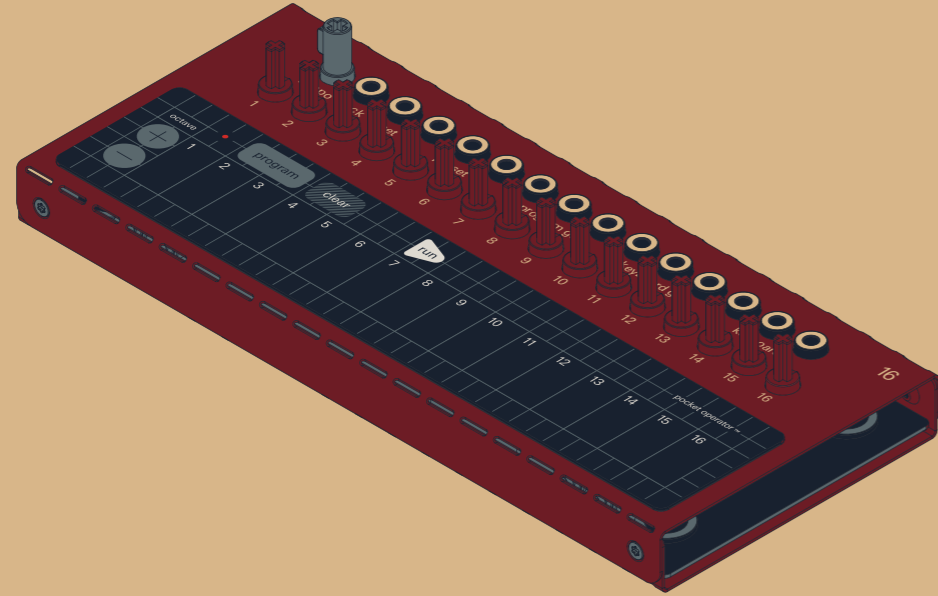
ケースの金属シートおよびフランジ部を曲げる際は、作業機などを補助に使用してください。また、曲げる方向について事前に十分確認の上、作業するよう注意してください。曲げられるのは1回のみとなります。それ以上はタブ部分が緩み、強度を失い破損するおそれがあります。

								
main parts A–F	module 1–16	sheet metal chassi kit	pocket operator modular system	pay attention to the detail within the circle	note the direction	build step 1...2...3	press all the way down and make sure it's flat	
								
sheet metal screw	module screw M2	torx T8	stand-off Ø 4 X 14	trim knob	value knob	see page no. for detailed information	task completed	
								
screwdriver torx T8	rubber foot	rubber foot for keyboard	400 color	170 color	16 color	attention critical detail	wise quotes	



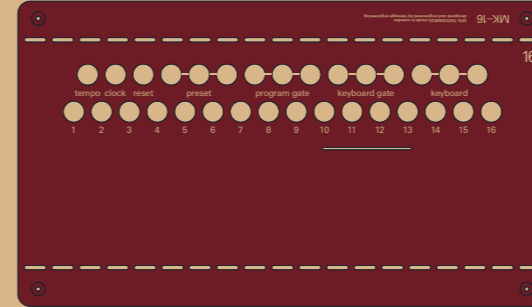
16

let's build

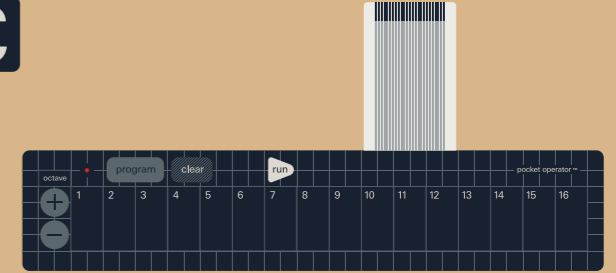


parts

A

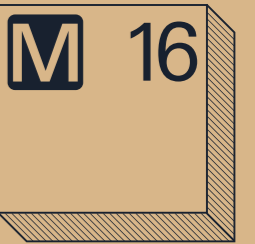
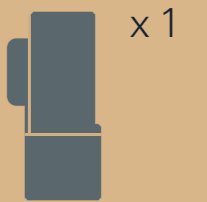
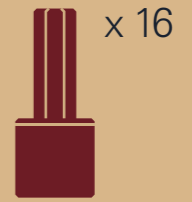
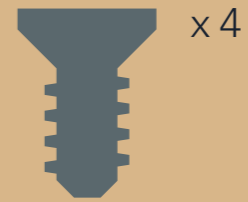
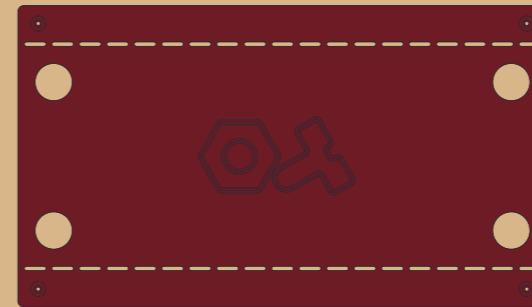


C



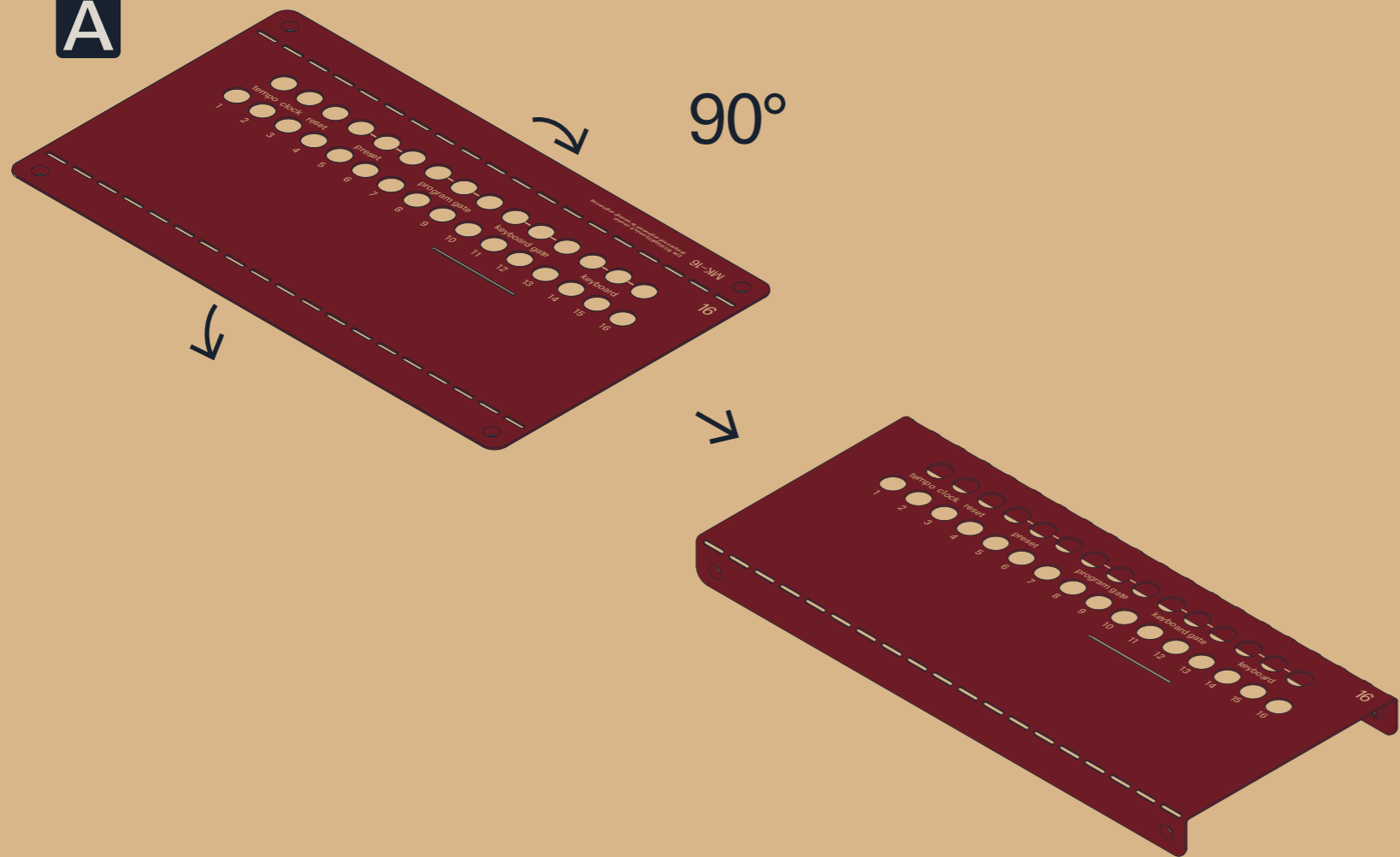
identify parts  
teile identifizieren  
identifier les pièces  
identificare le parti  
パーツの確認

B



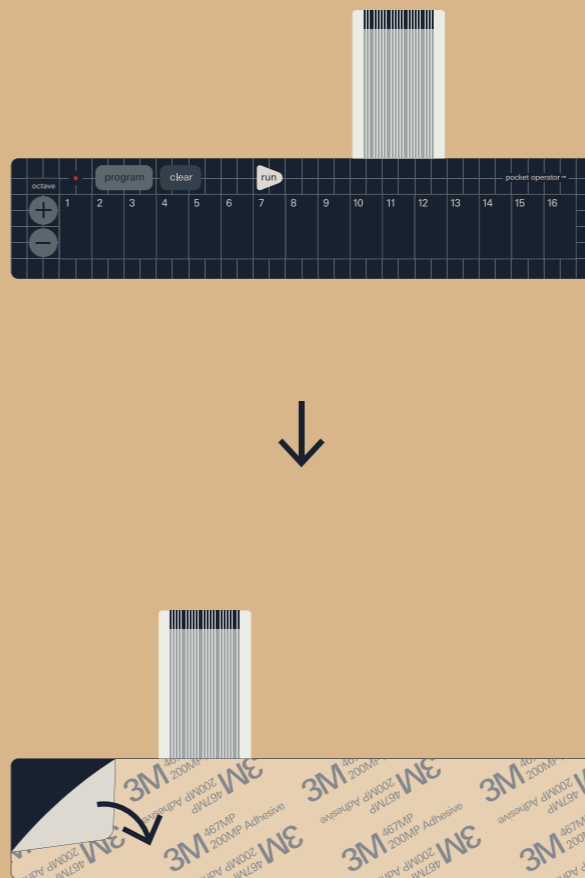
1

A

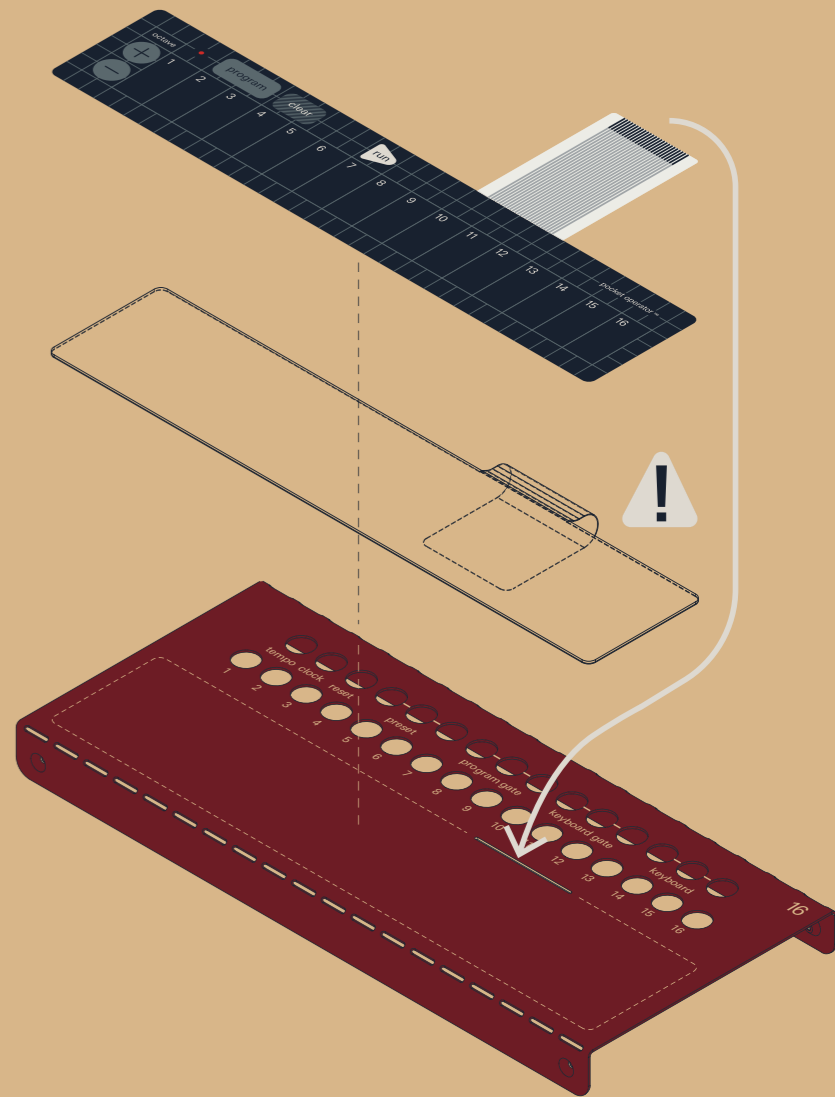


2

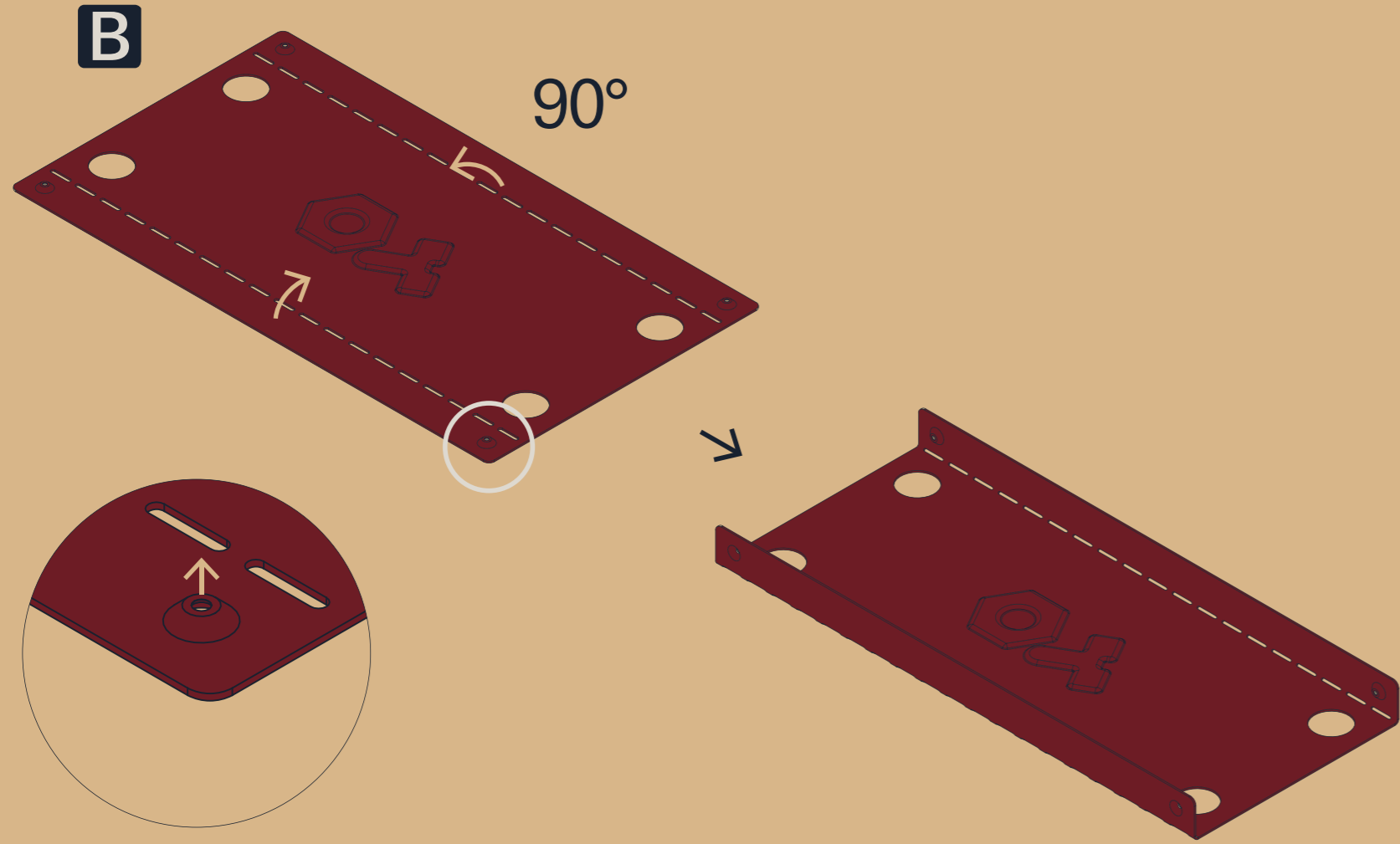
C



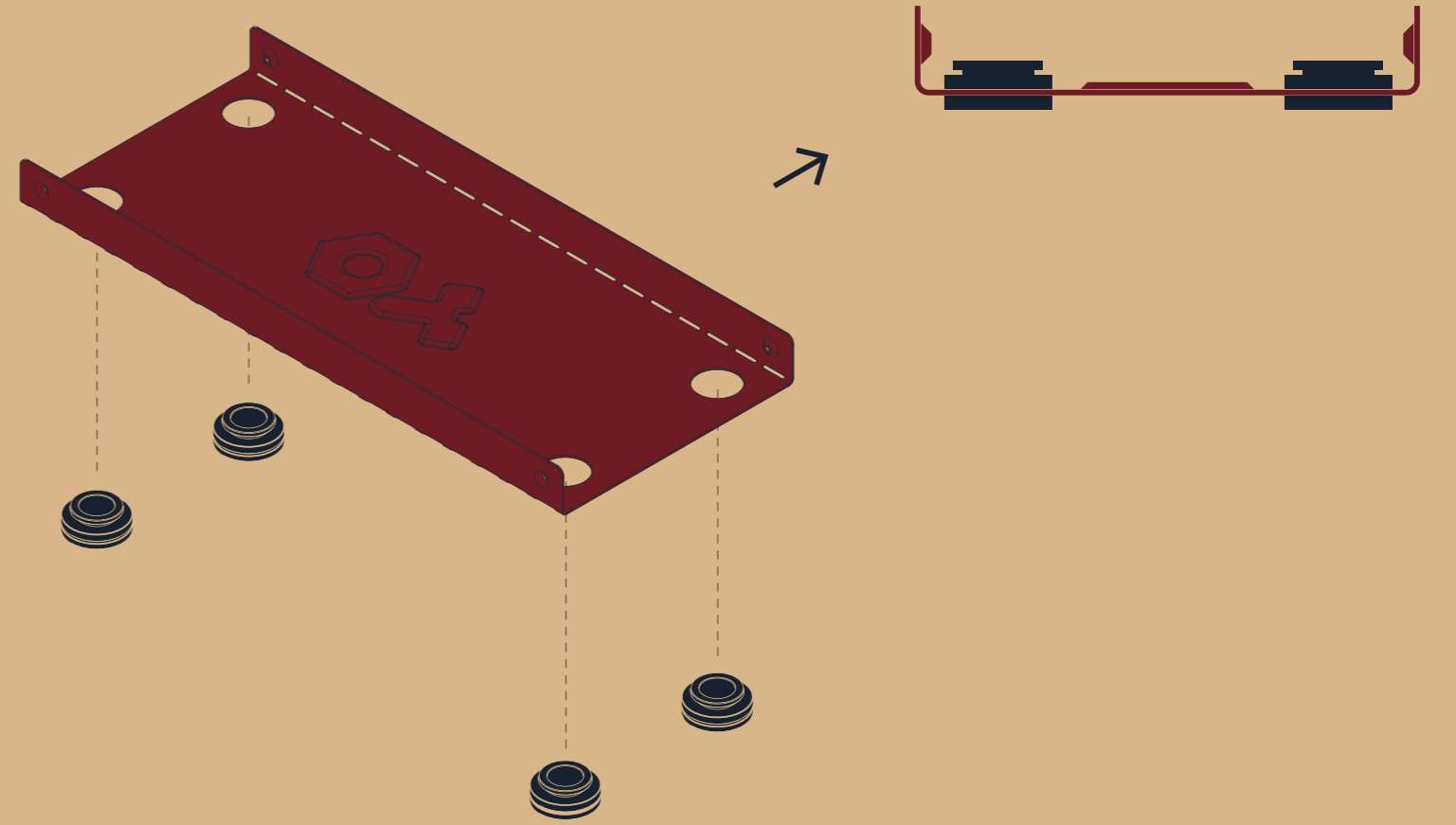
3



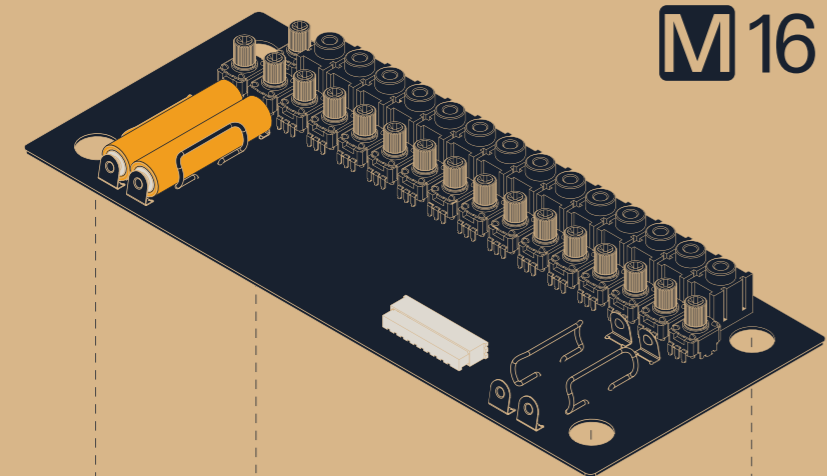
4



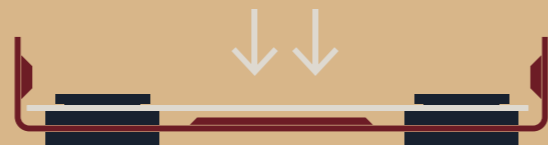
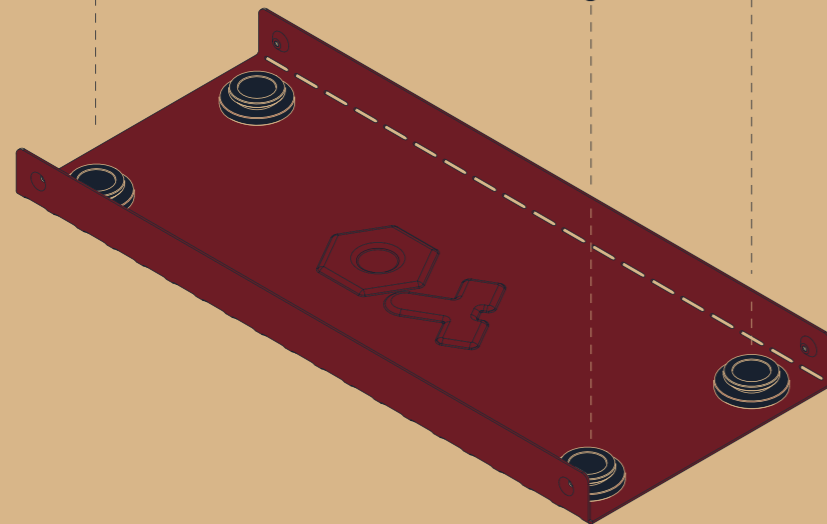
5



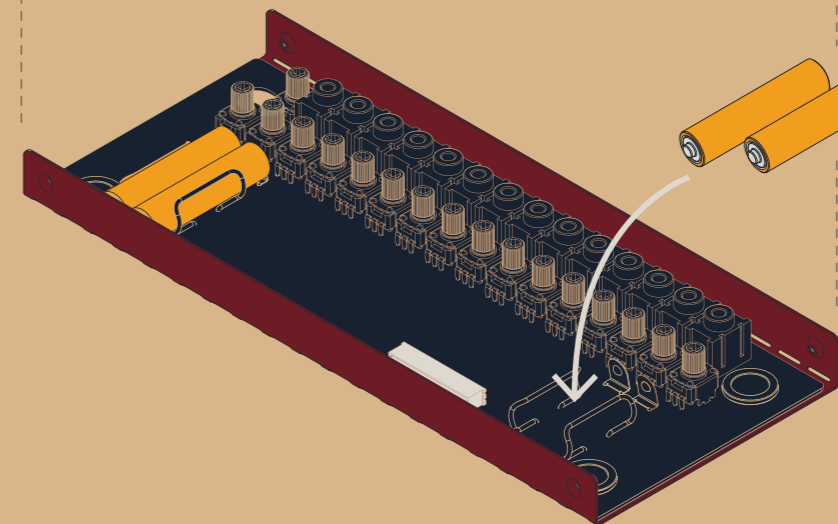
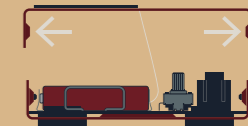
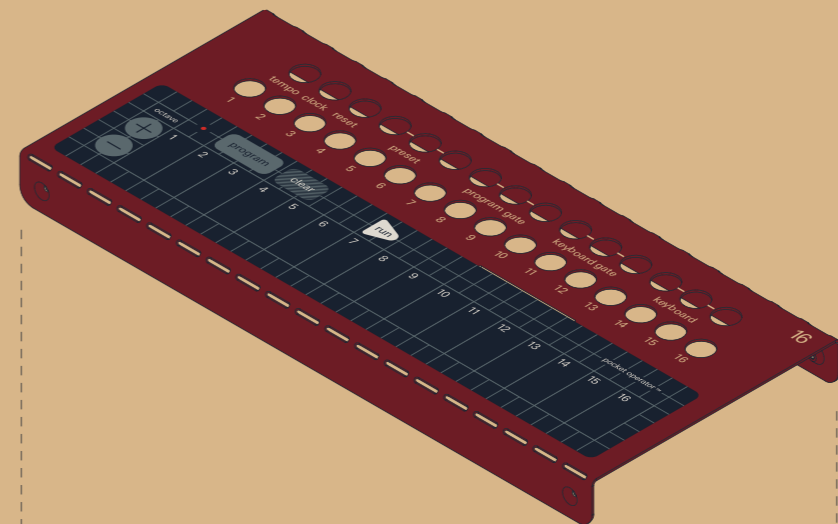
6



M 16

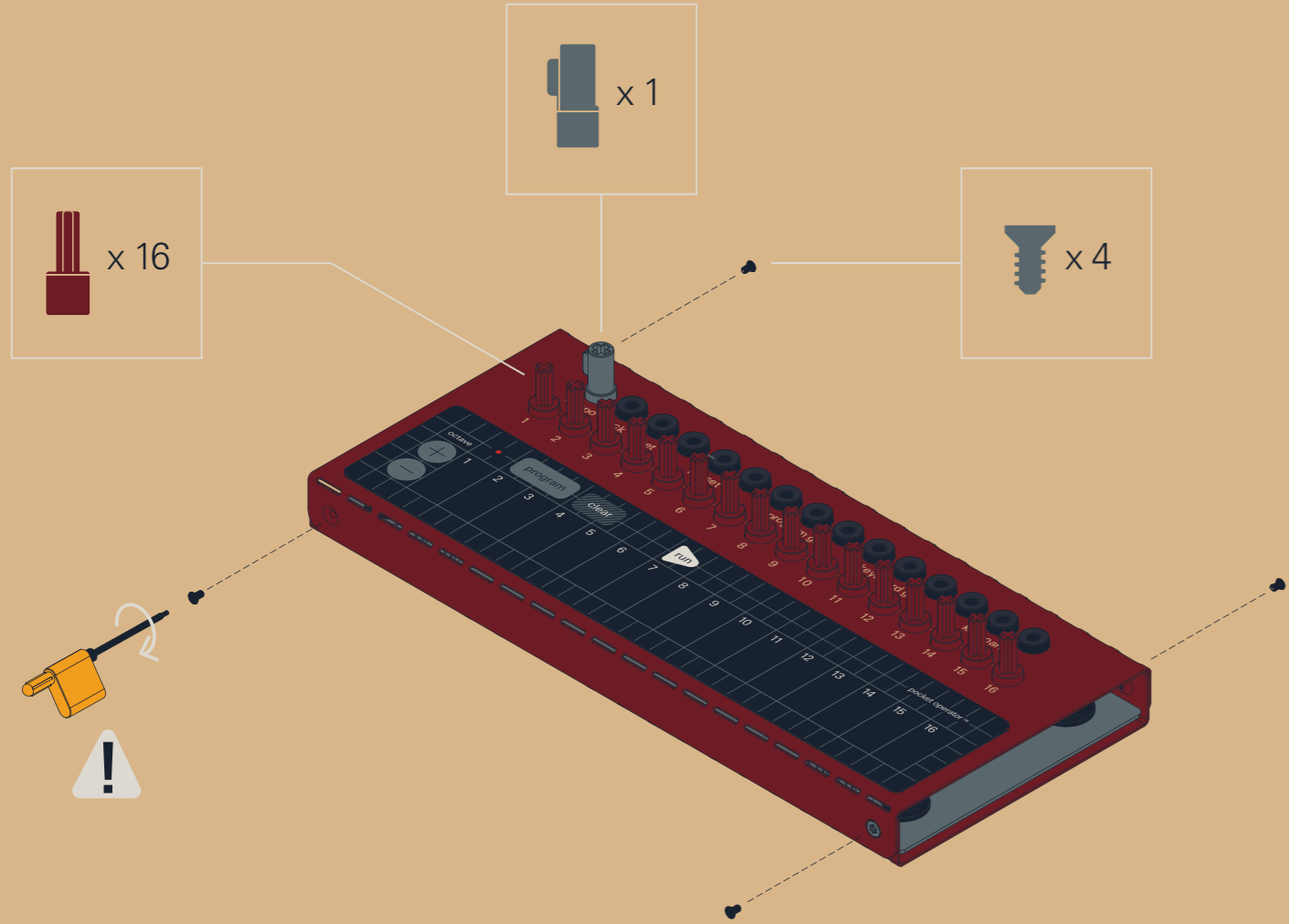


7

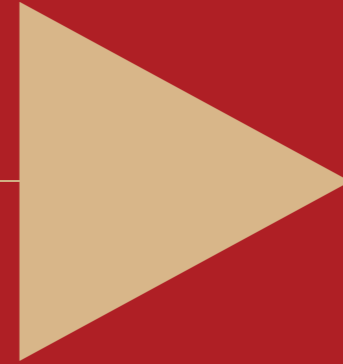


AA x 4

8



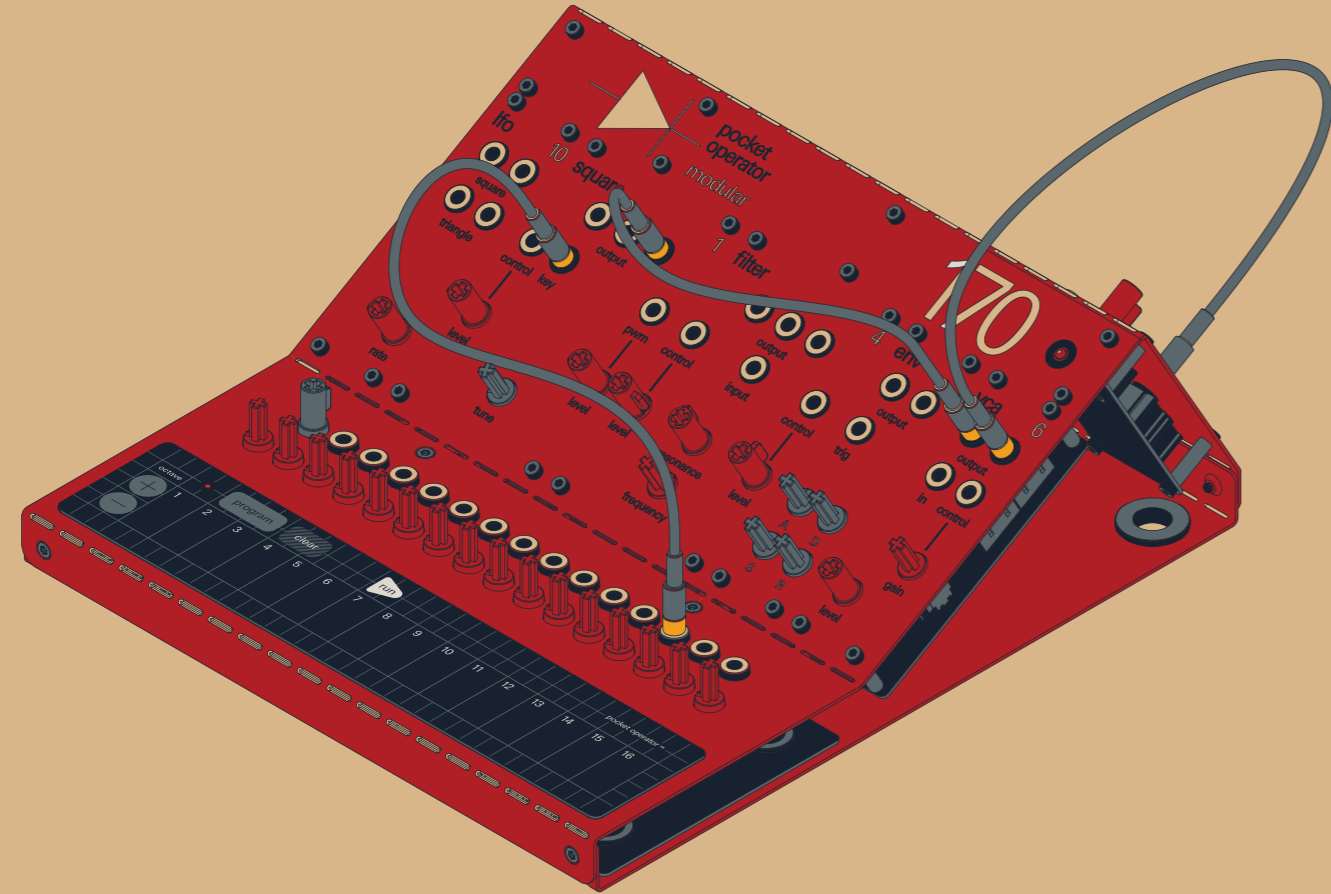
do not over tighten screws  
schrauben nicht zu fest anziehen  
ne pas trop serrer les vis  
non stringere troppo le viti  
ネジを締めすぎないようにご注意ください。



170



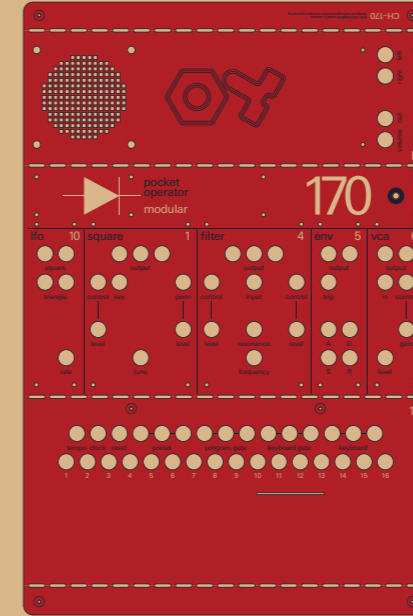
let's build



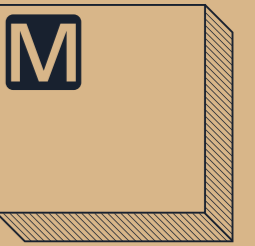
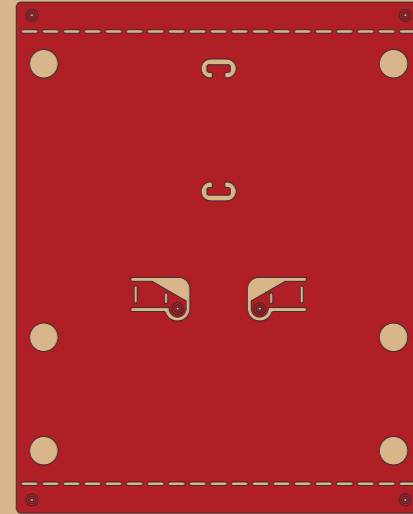
## parts

identify parts  
teile identifizieren  
identifier les pièces  
identificare le parti  
パーツの確認

**A**



**B**



1, 4, 5, 6, 10,  
11, 14, 16



x 6

**M**



x 64



x 32



x 18



x 8



x 5



x 1

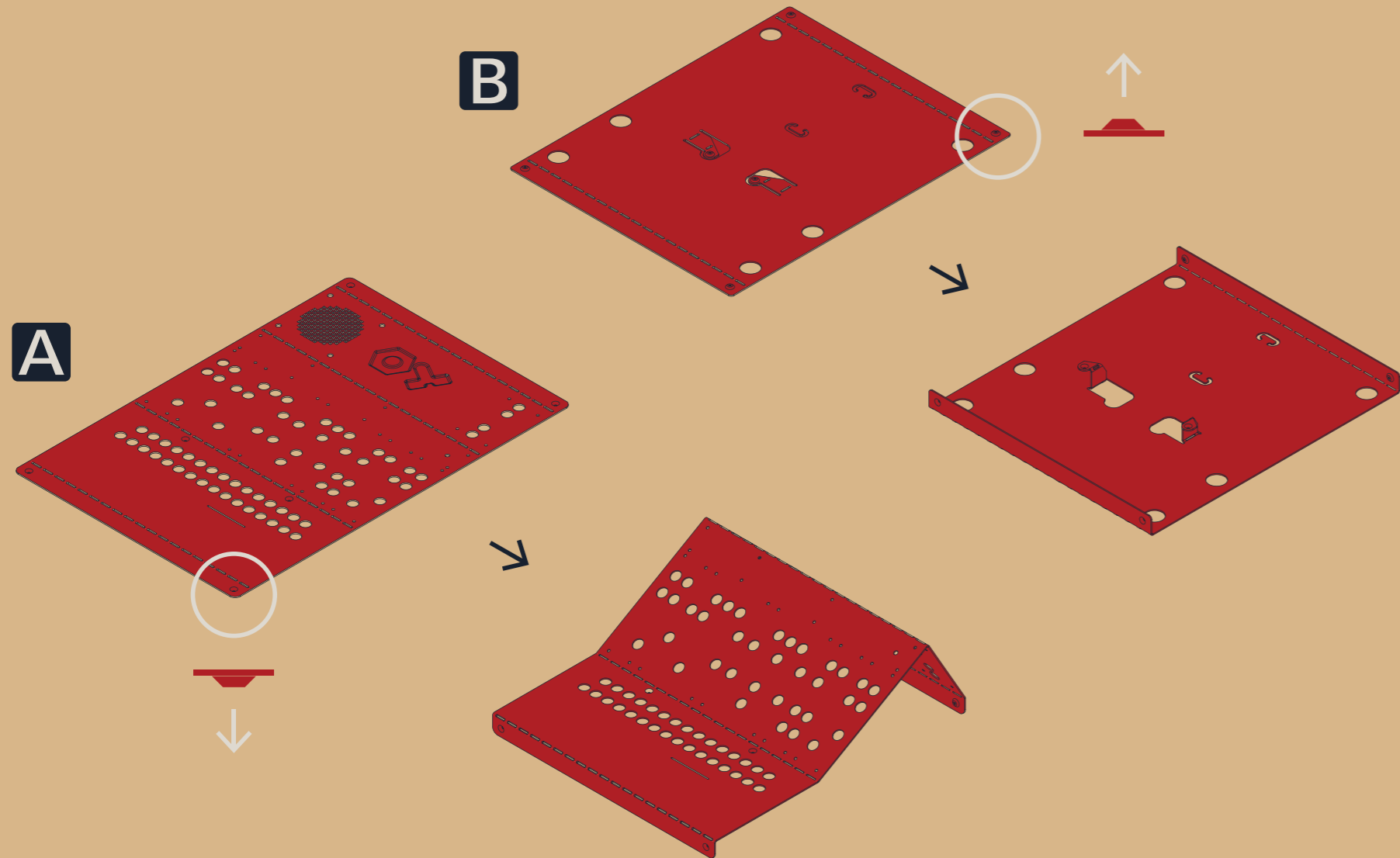


x 4

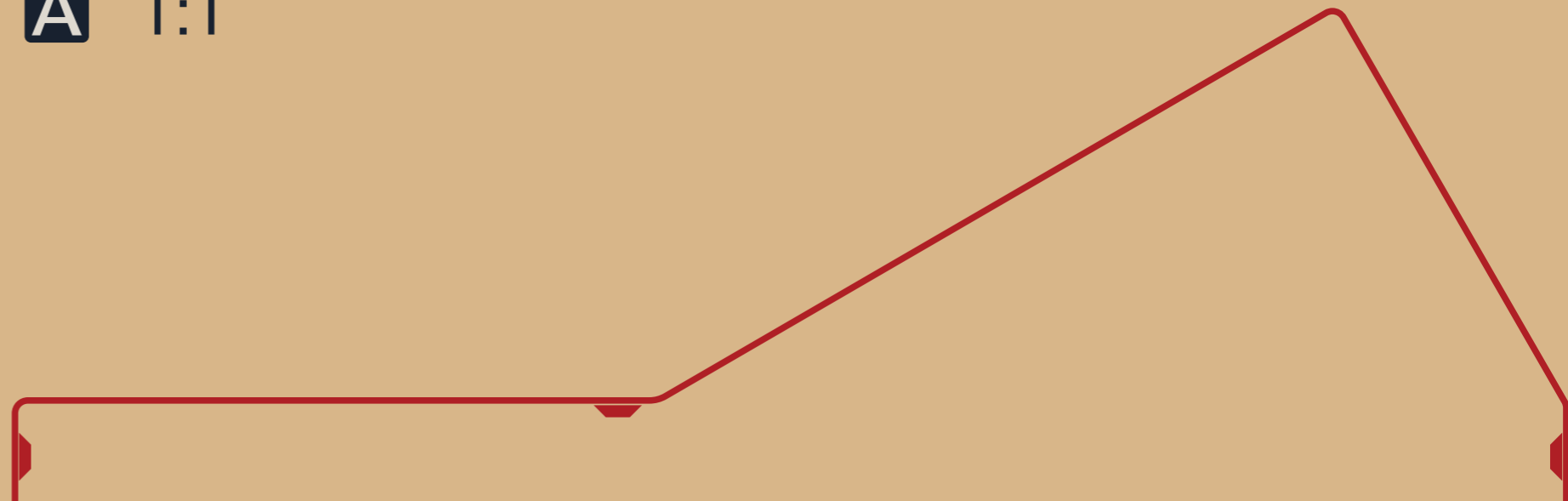


x 2

1



A 1:1



B

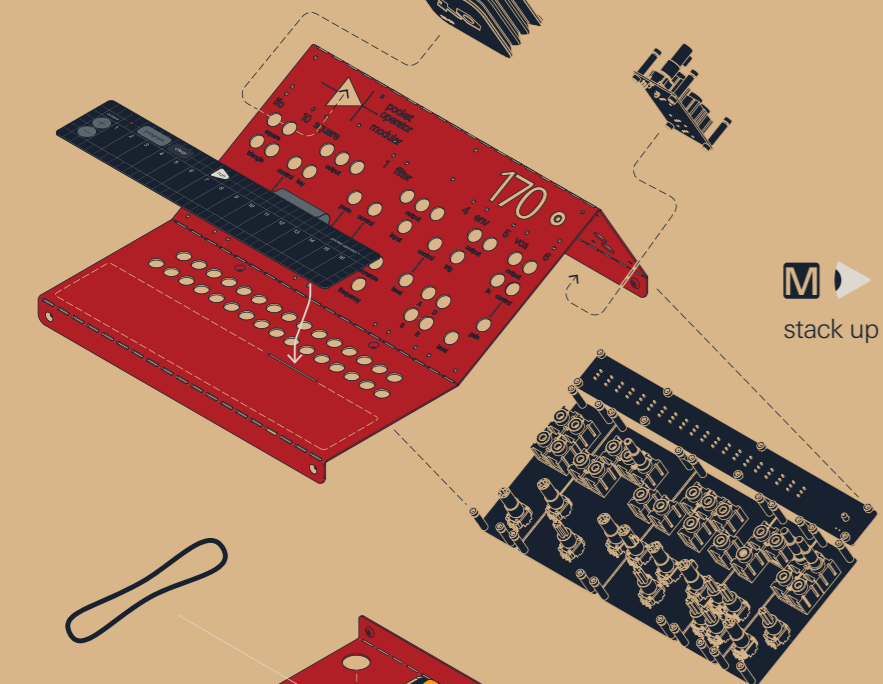


2

M speaker assembly

M 11

M stack up

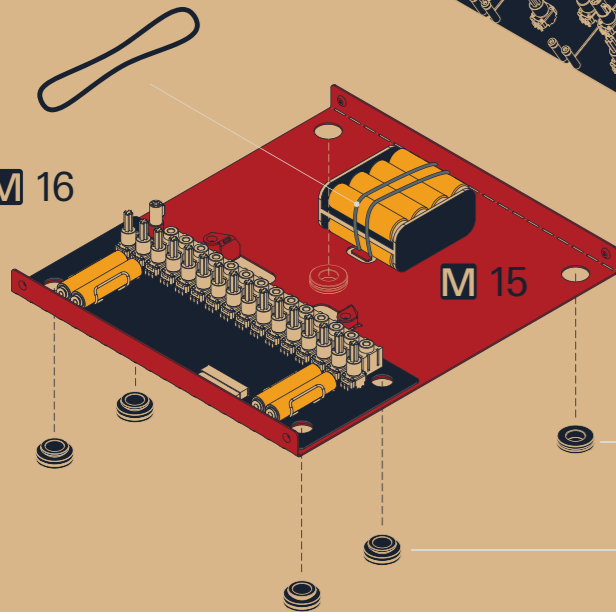


M 16

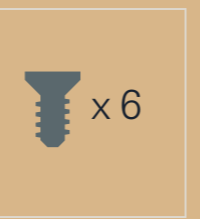
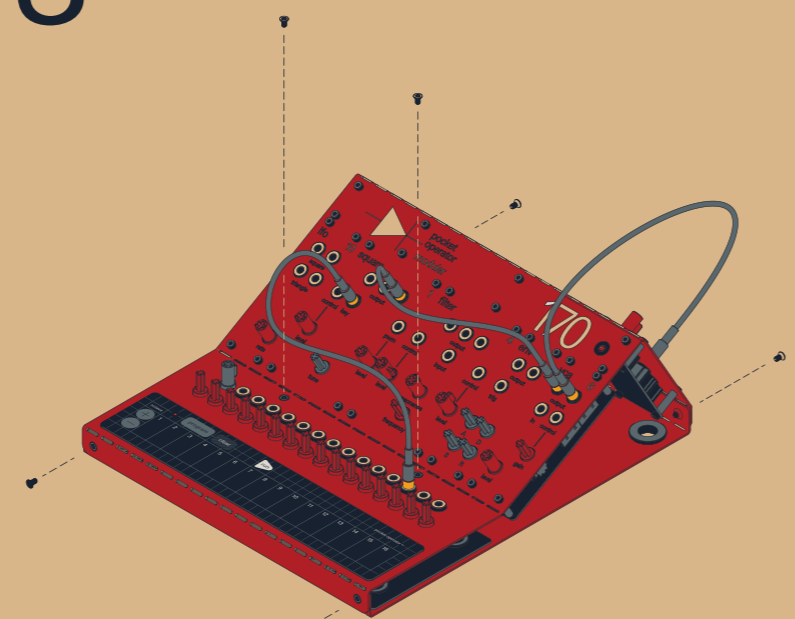
M 15

x 2

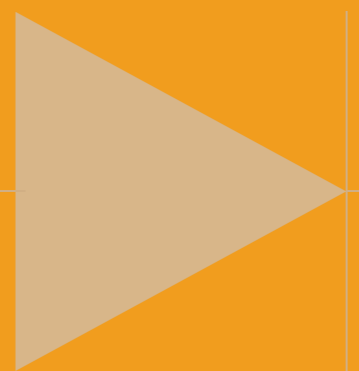
x 4



3

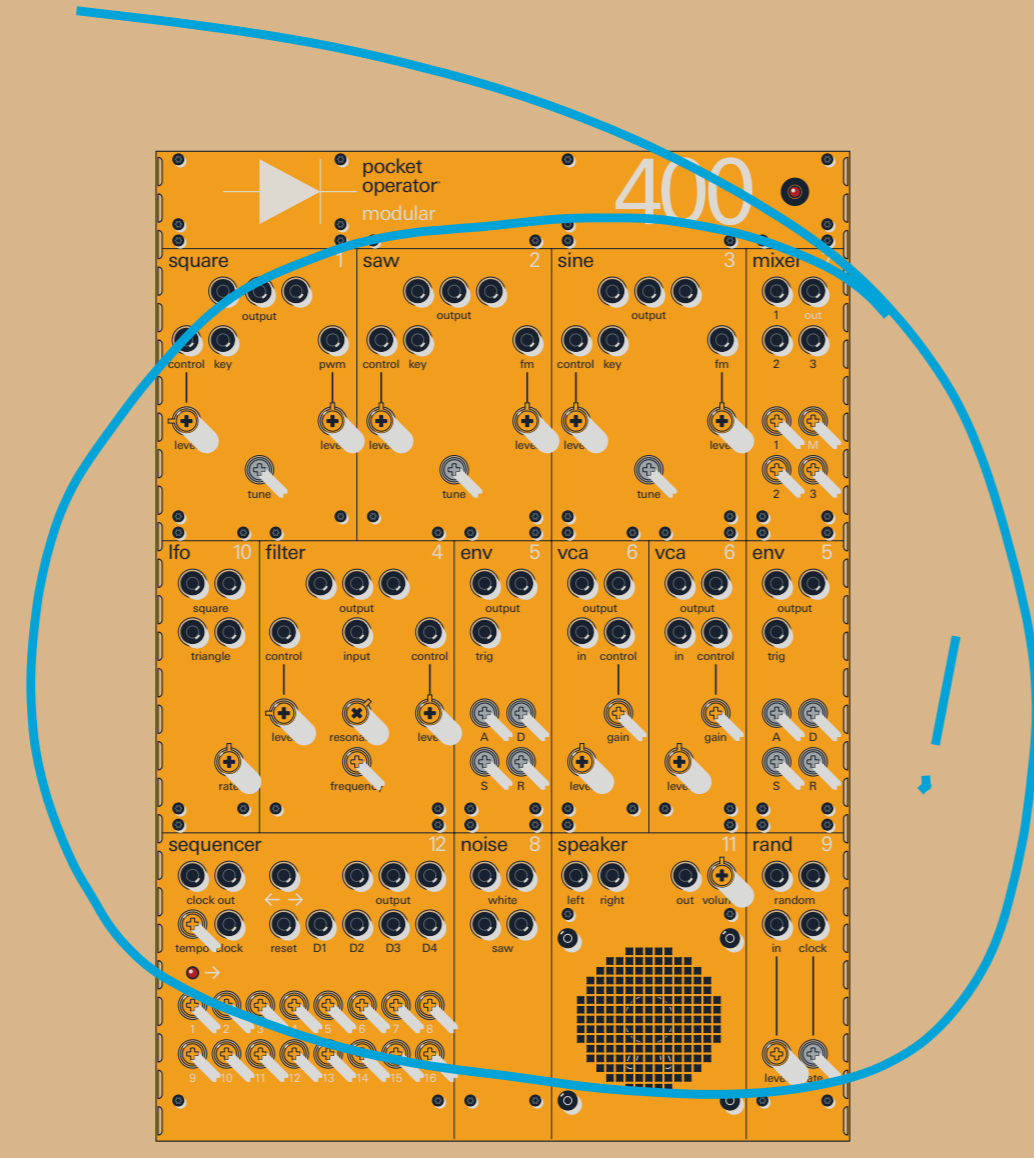
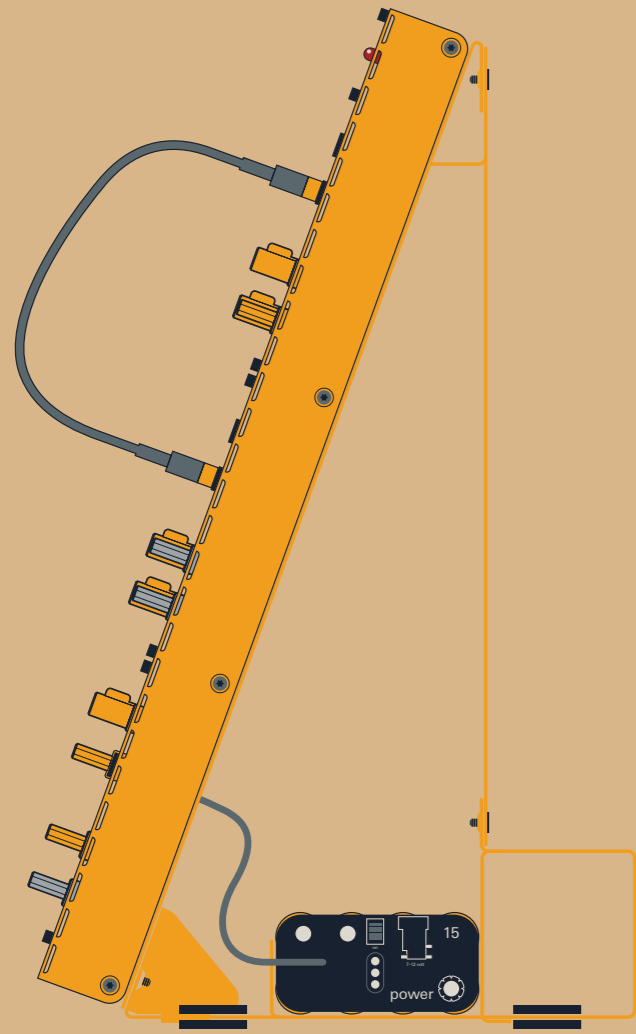


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 schrauben nicht zu fest anziehen  
 ne pas trop serrer les vis  
 non stringere troppo le viti  
 ネジを締めすぎないように注意ください。



# 400

let's build

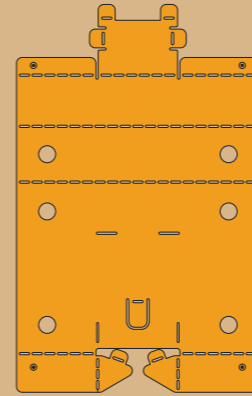


# parts

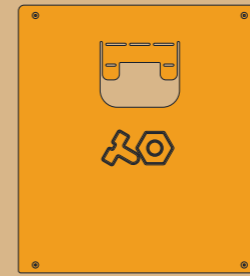
identify parts  
teile identifizieren  
identifier les pièces  
identificare le parti  
パーツの確認



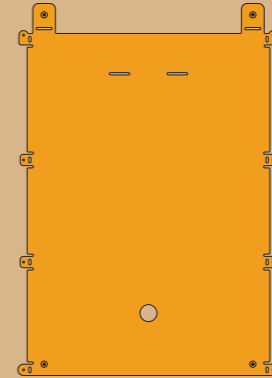
**A**



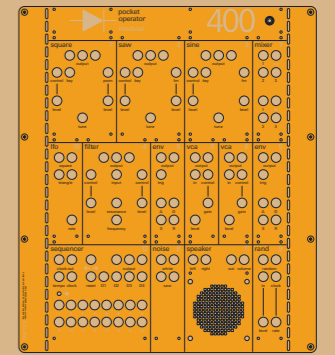
**B**



**C**



**D**

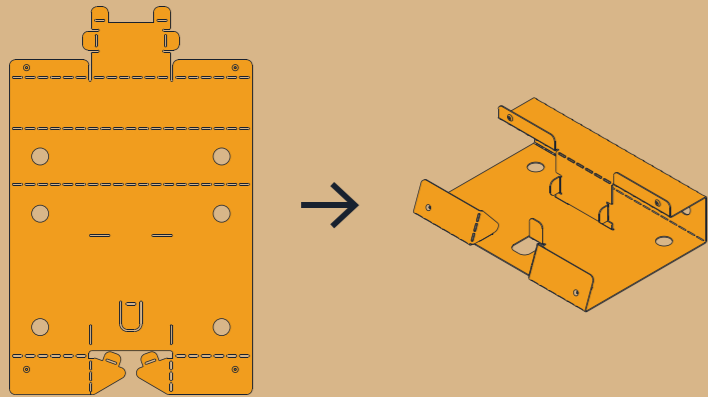


**M**

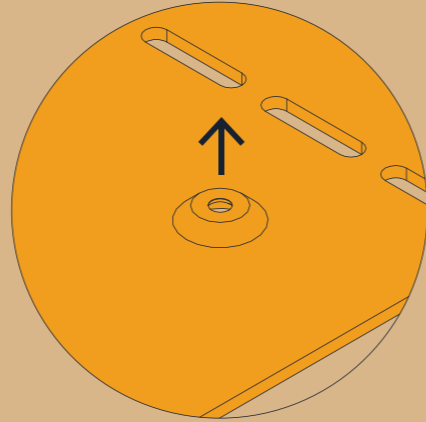
1-15



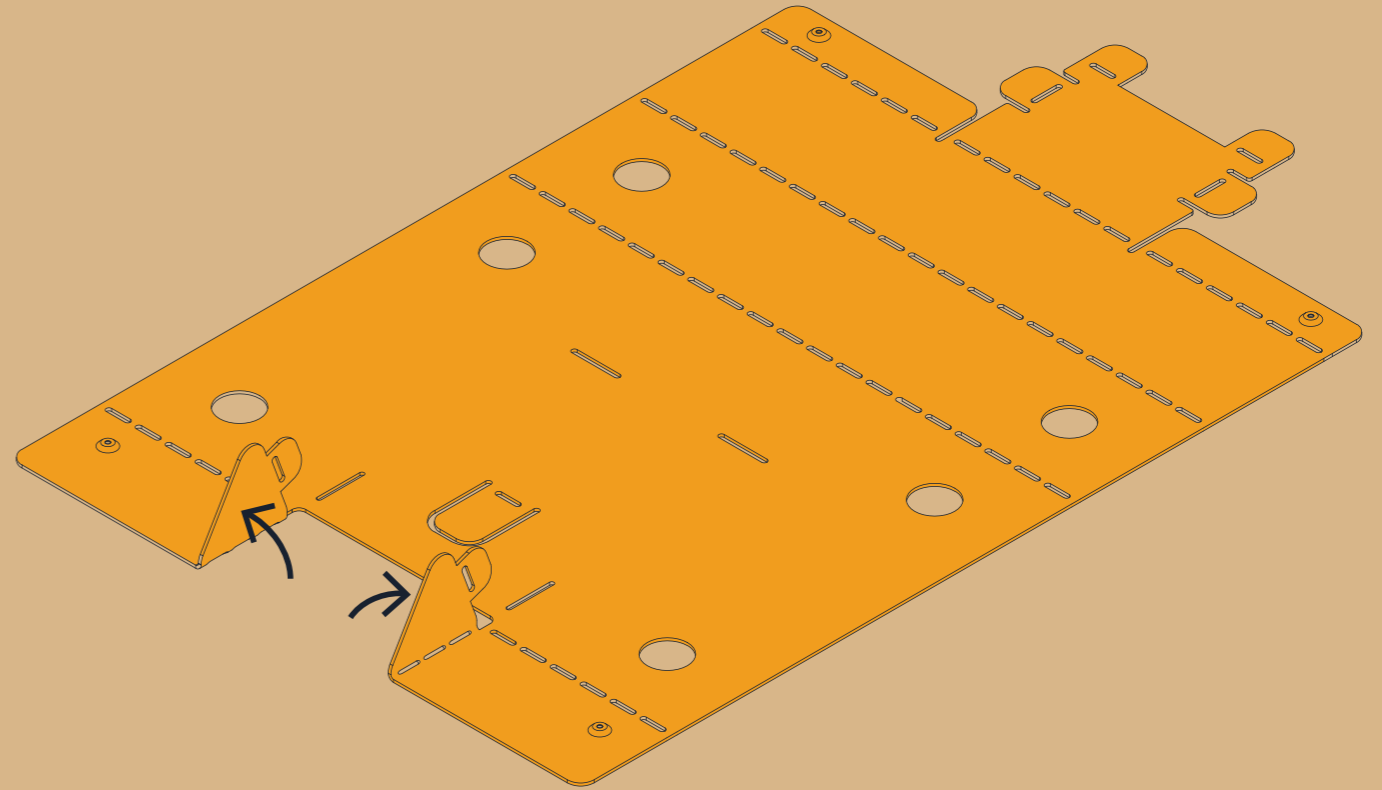
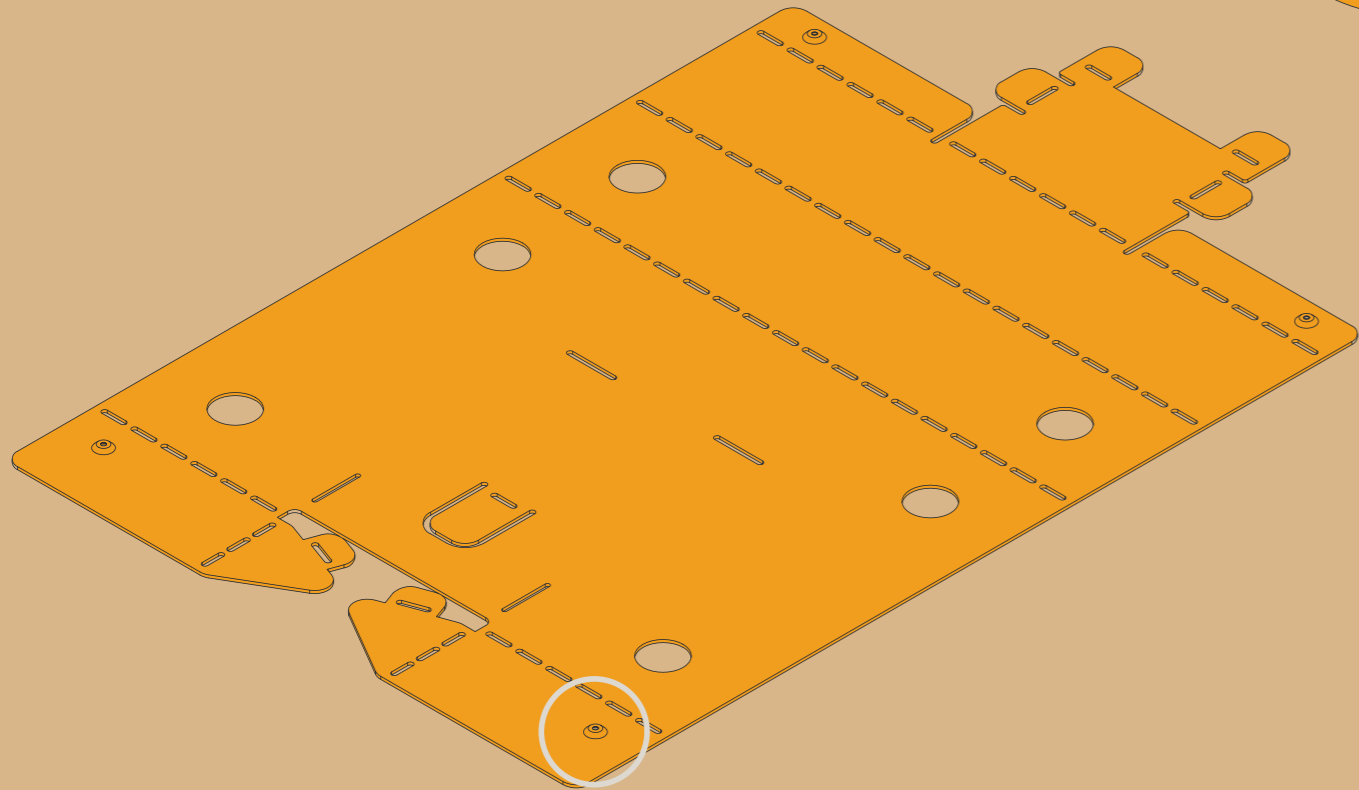
A



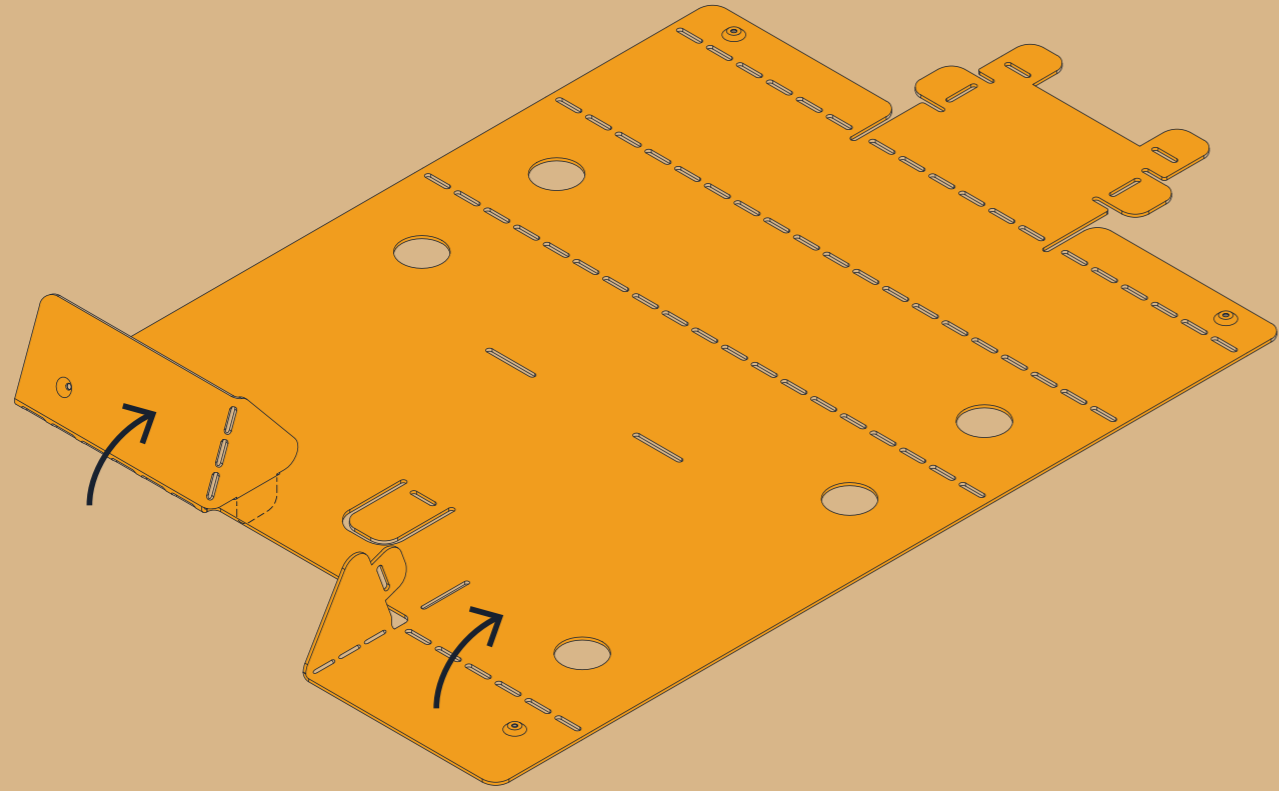
2



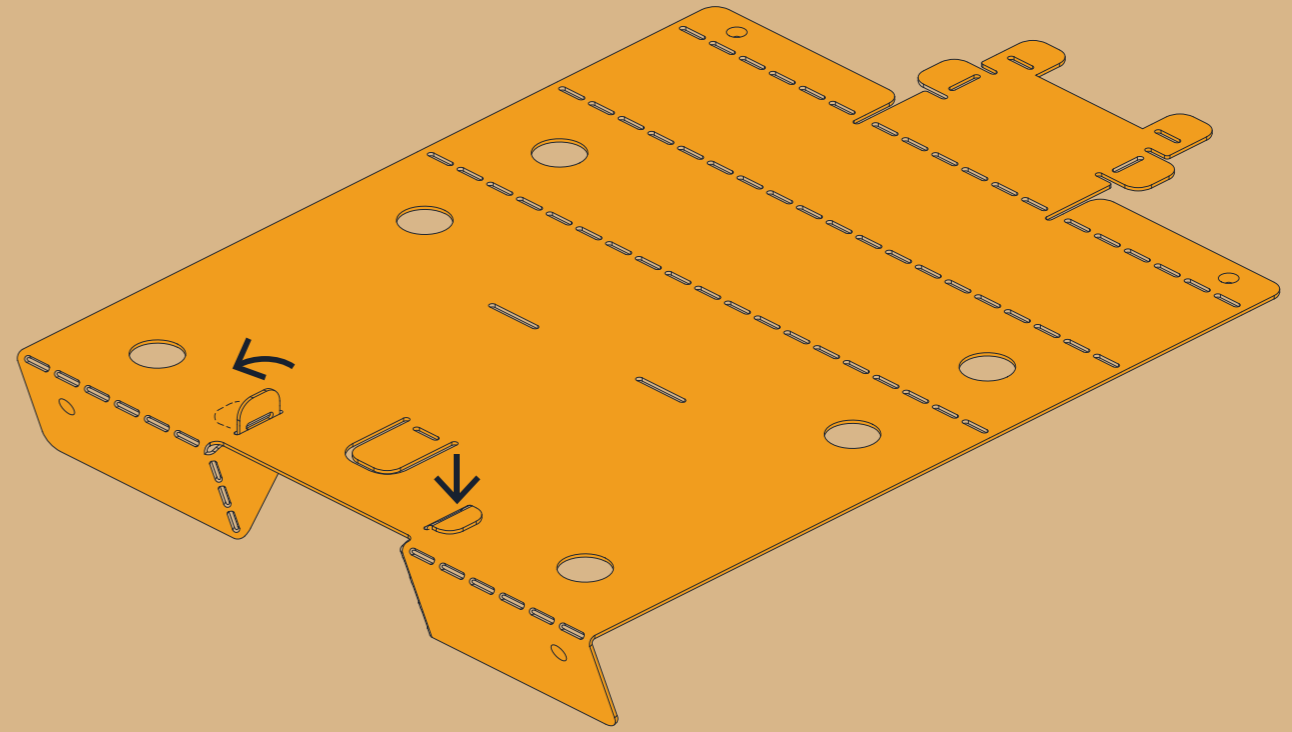
1



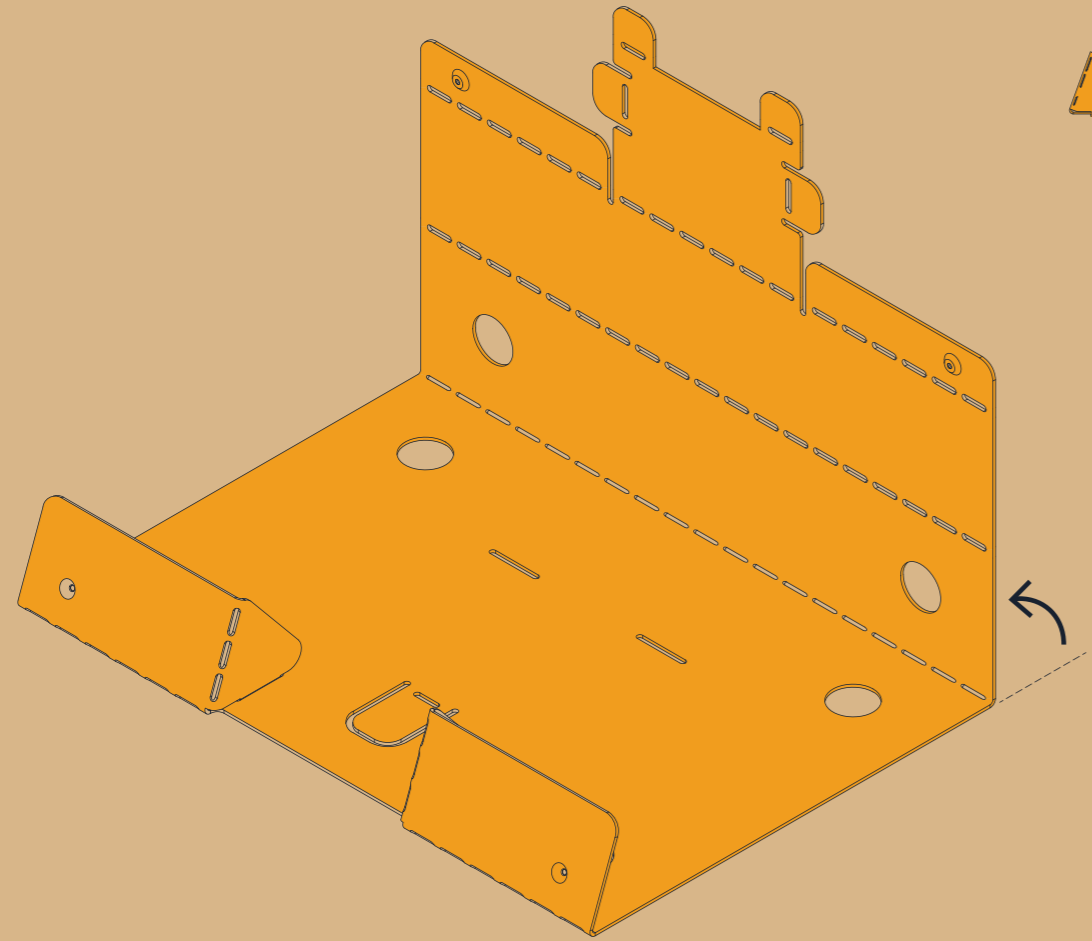
3



4

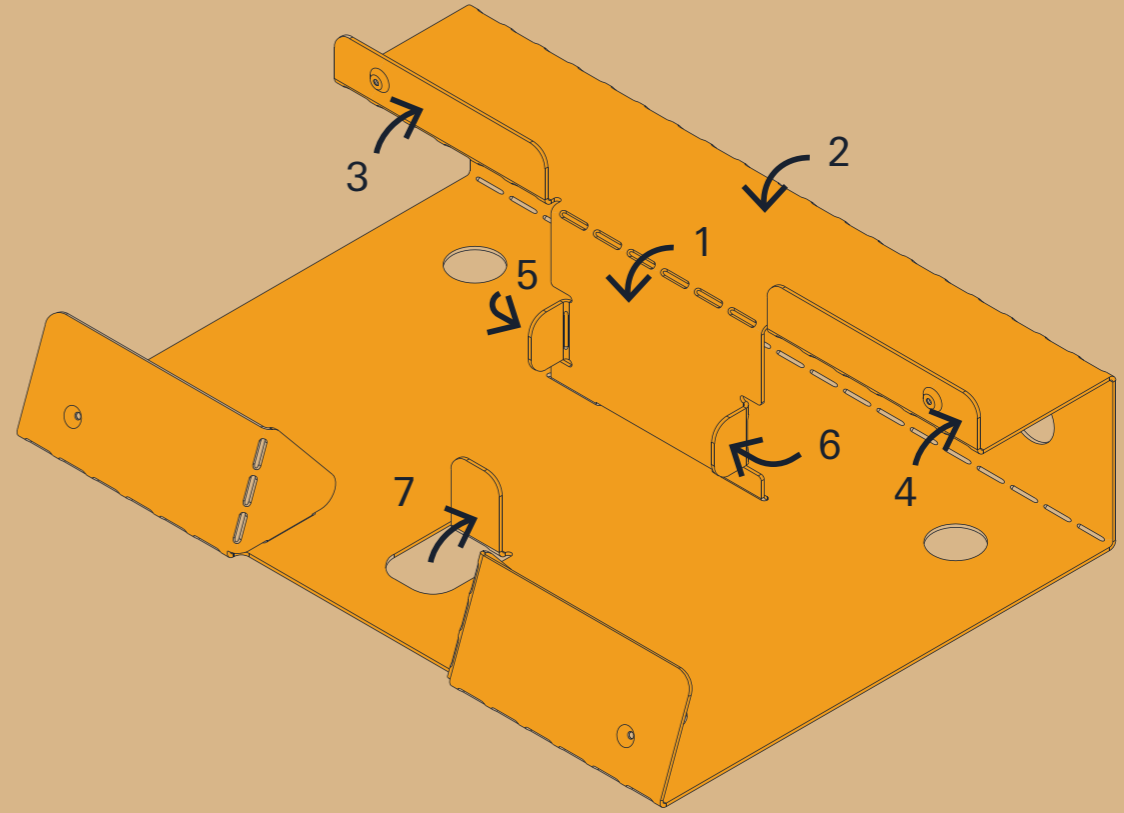


5

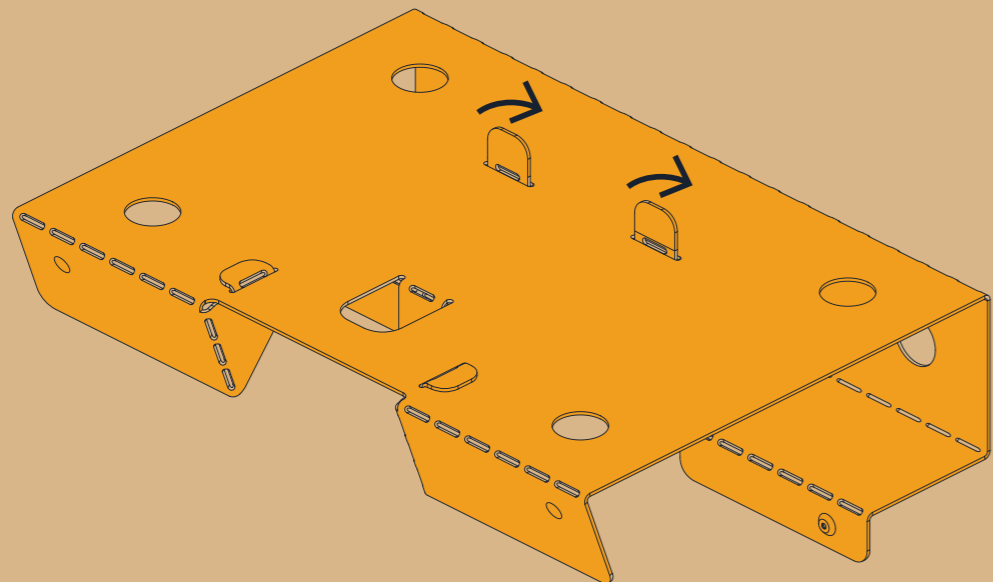


6

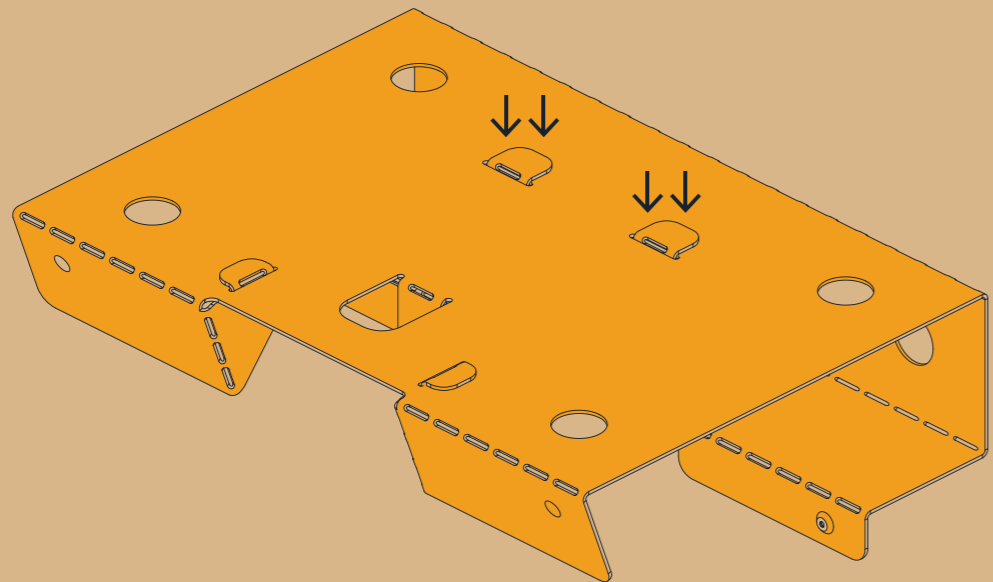
1-7 90°



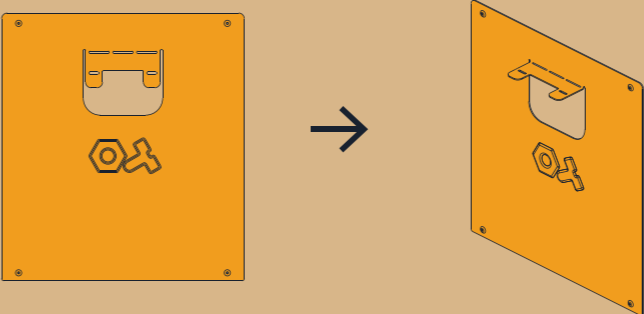
7



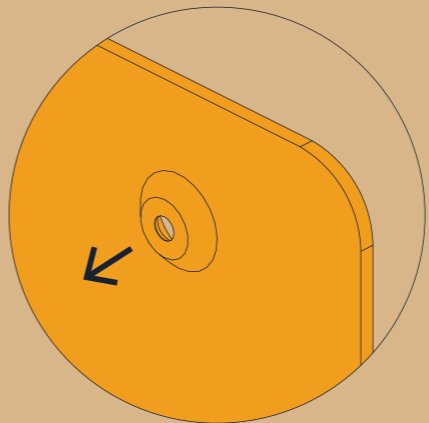
8



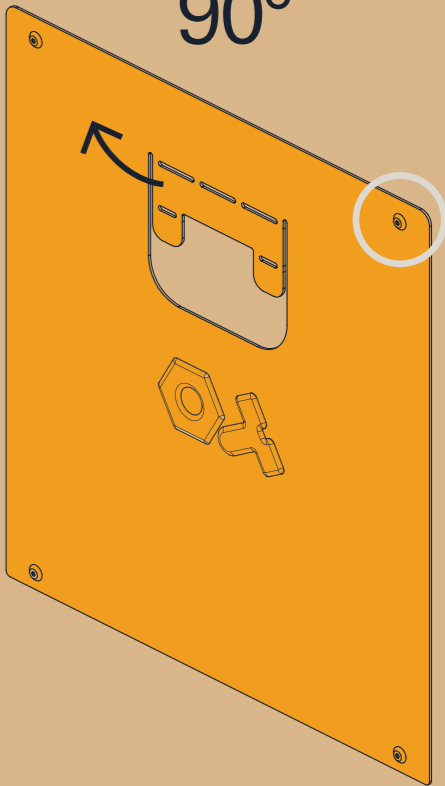
**B**



9

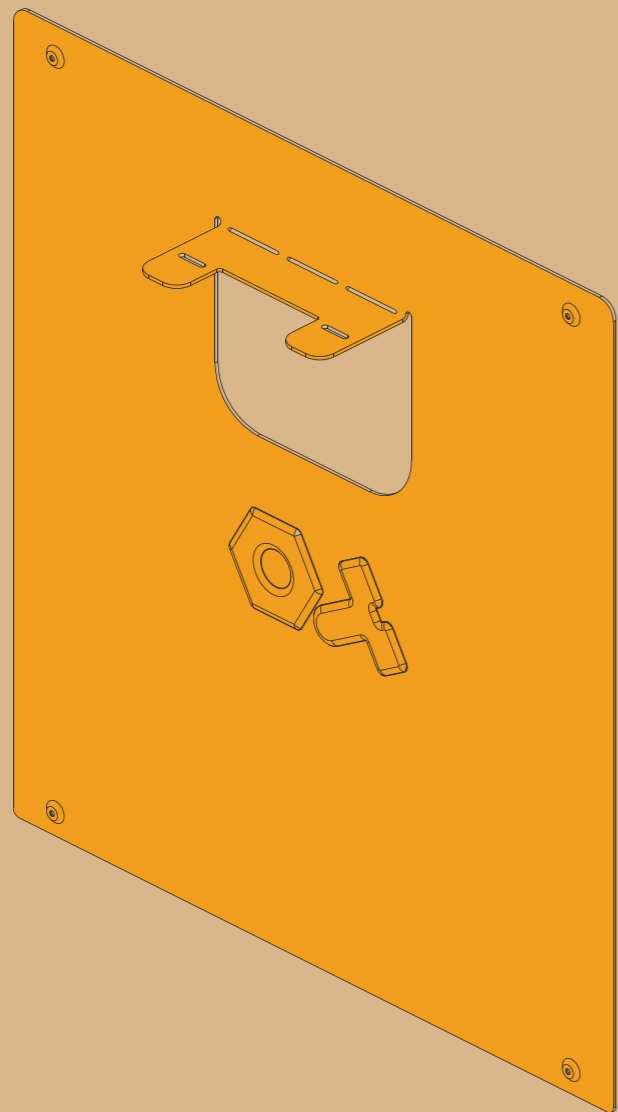


90°

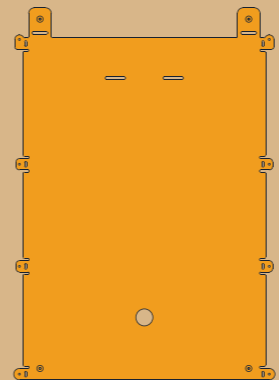




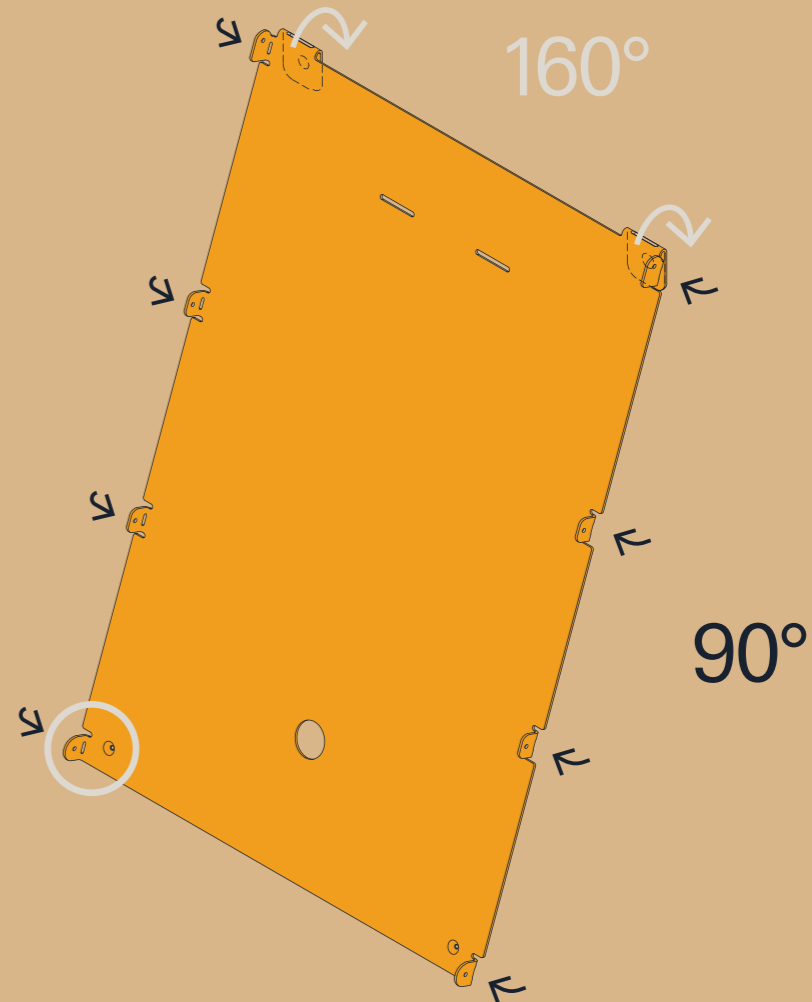
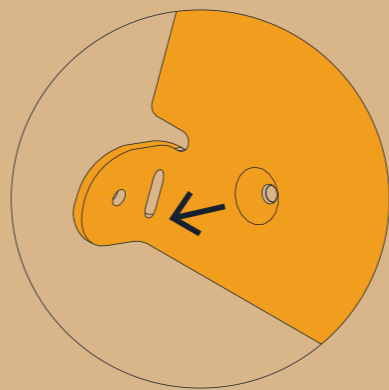
10



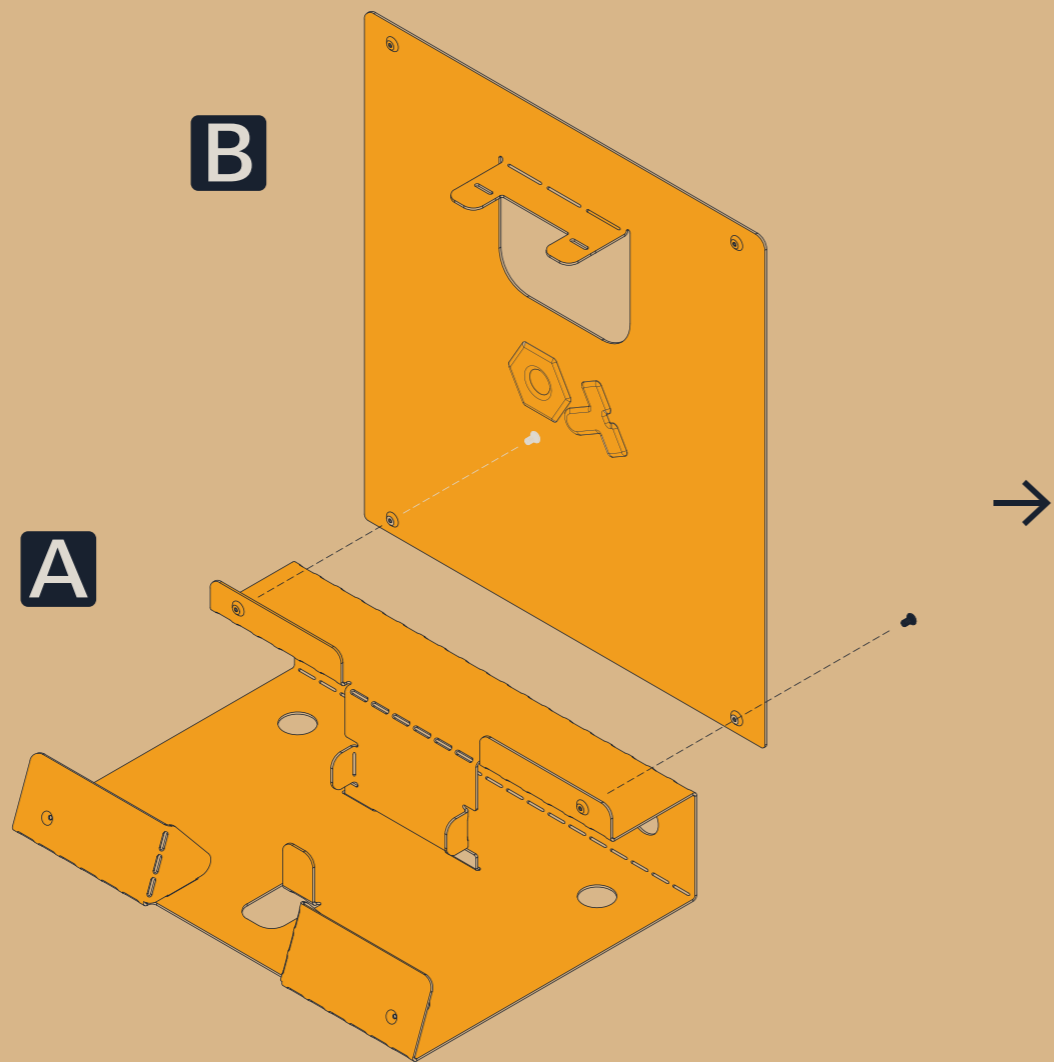
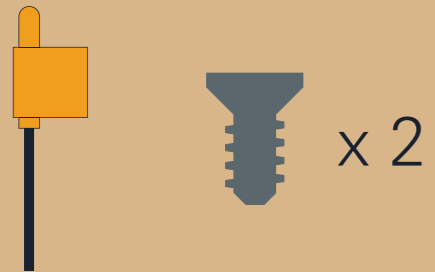
C



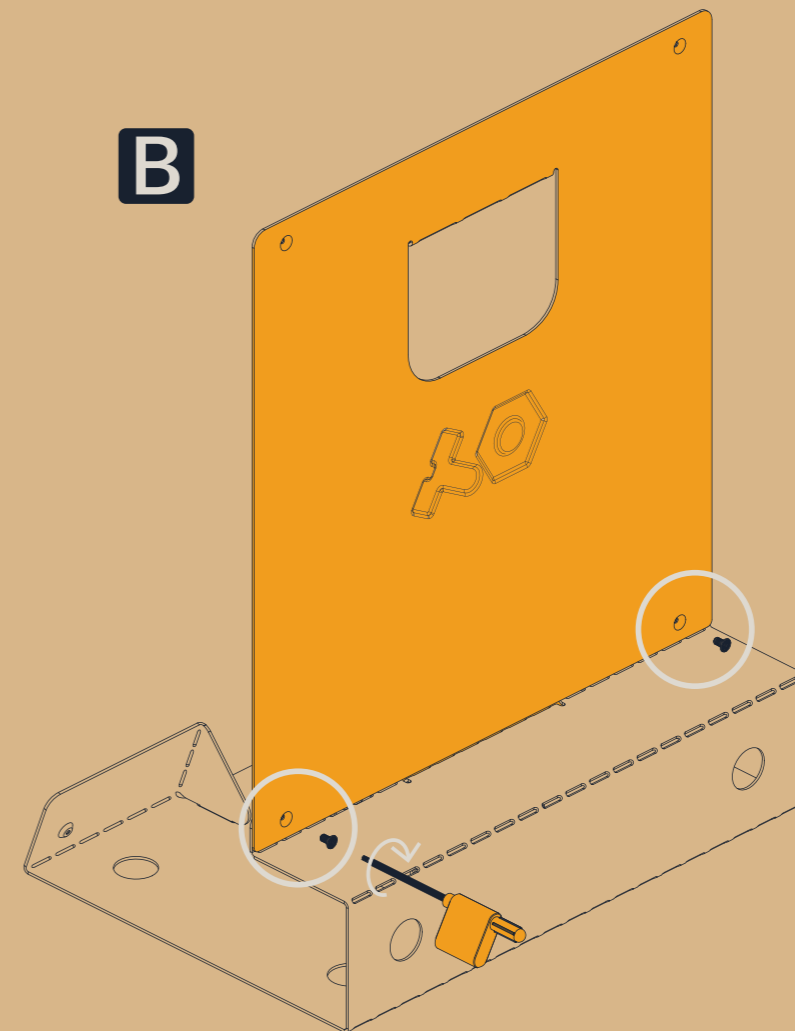
11



12

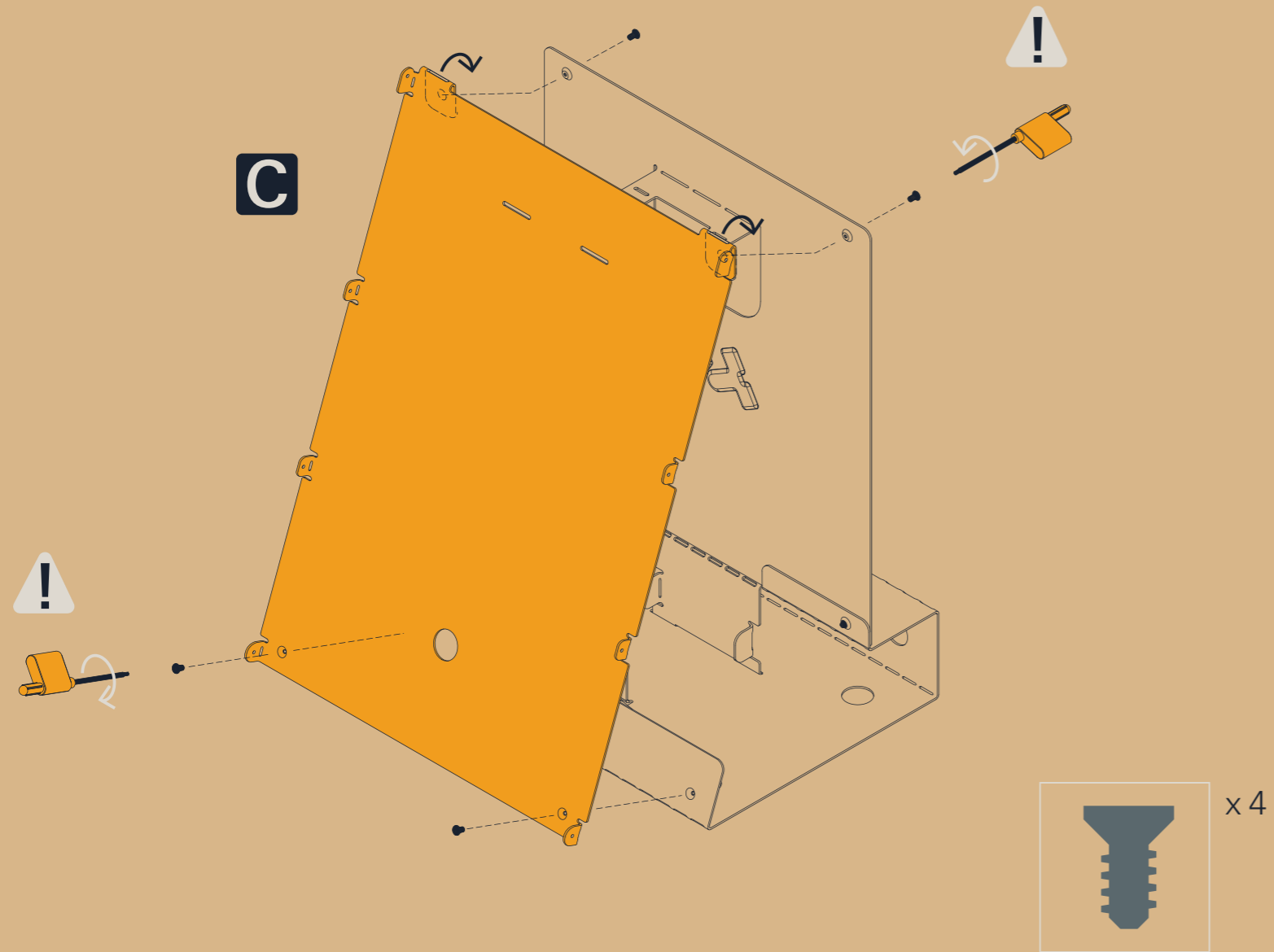


13

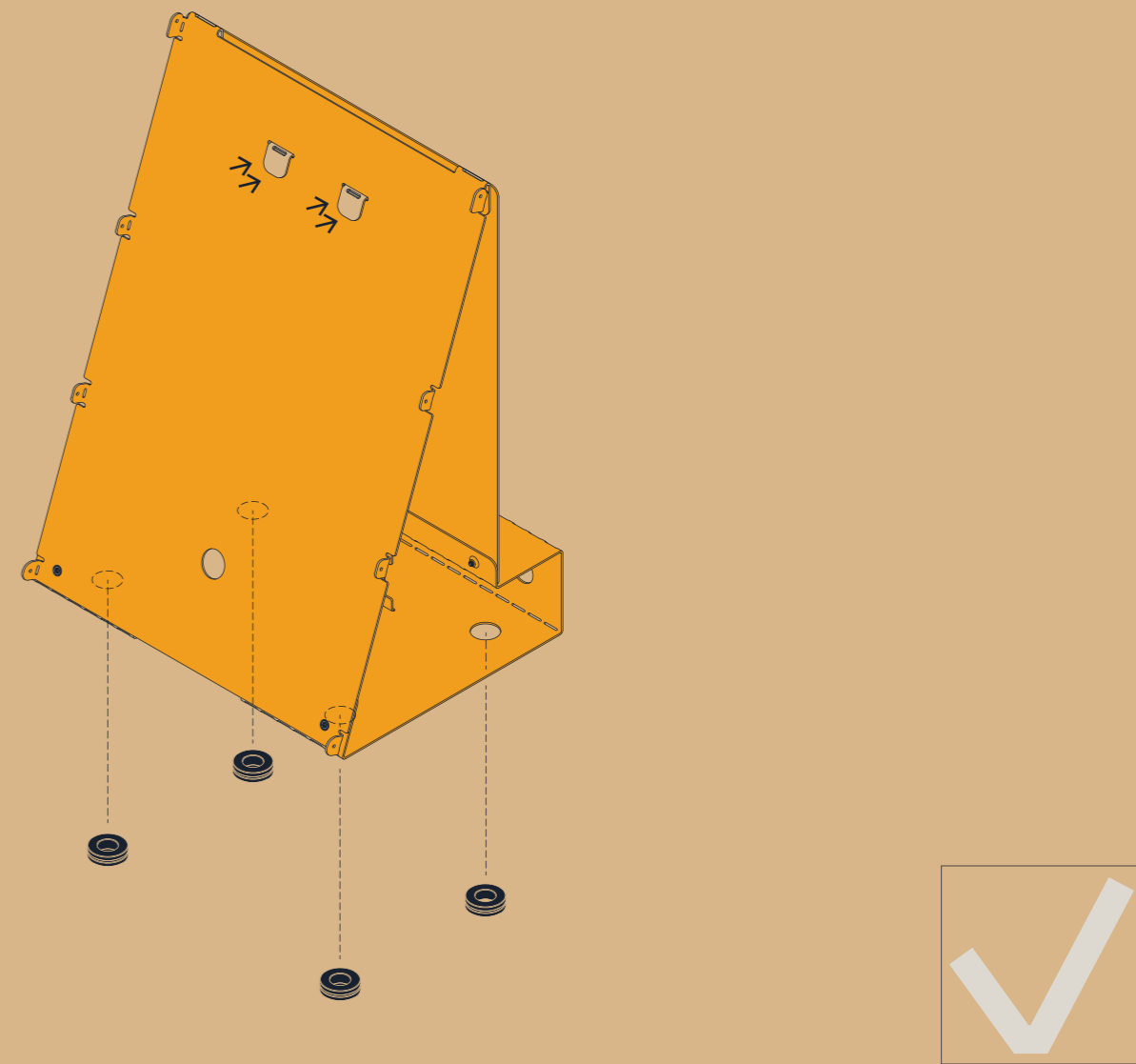


do not over tighten screws  
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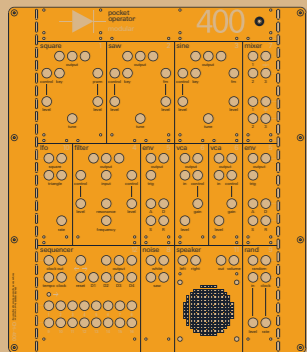
14



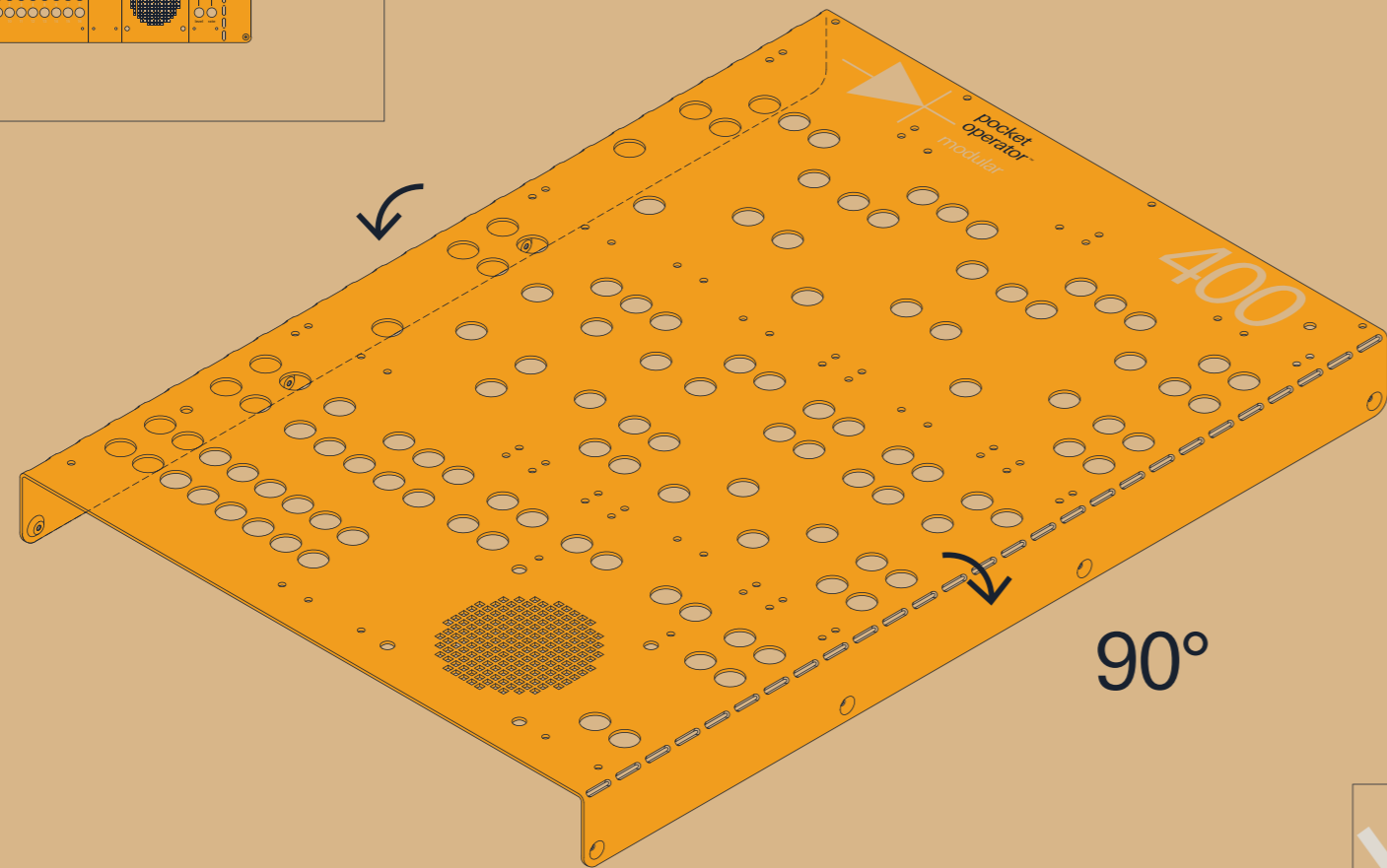
15



D



16

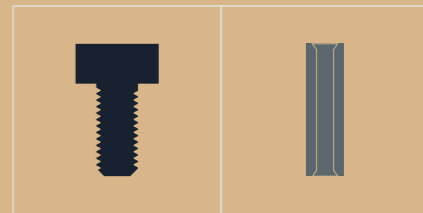
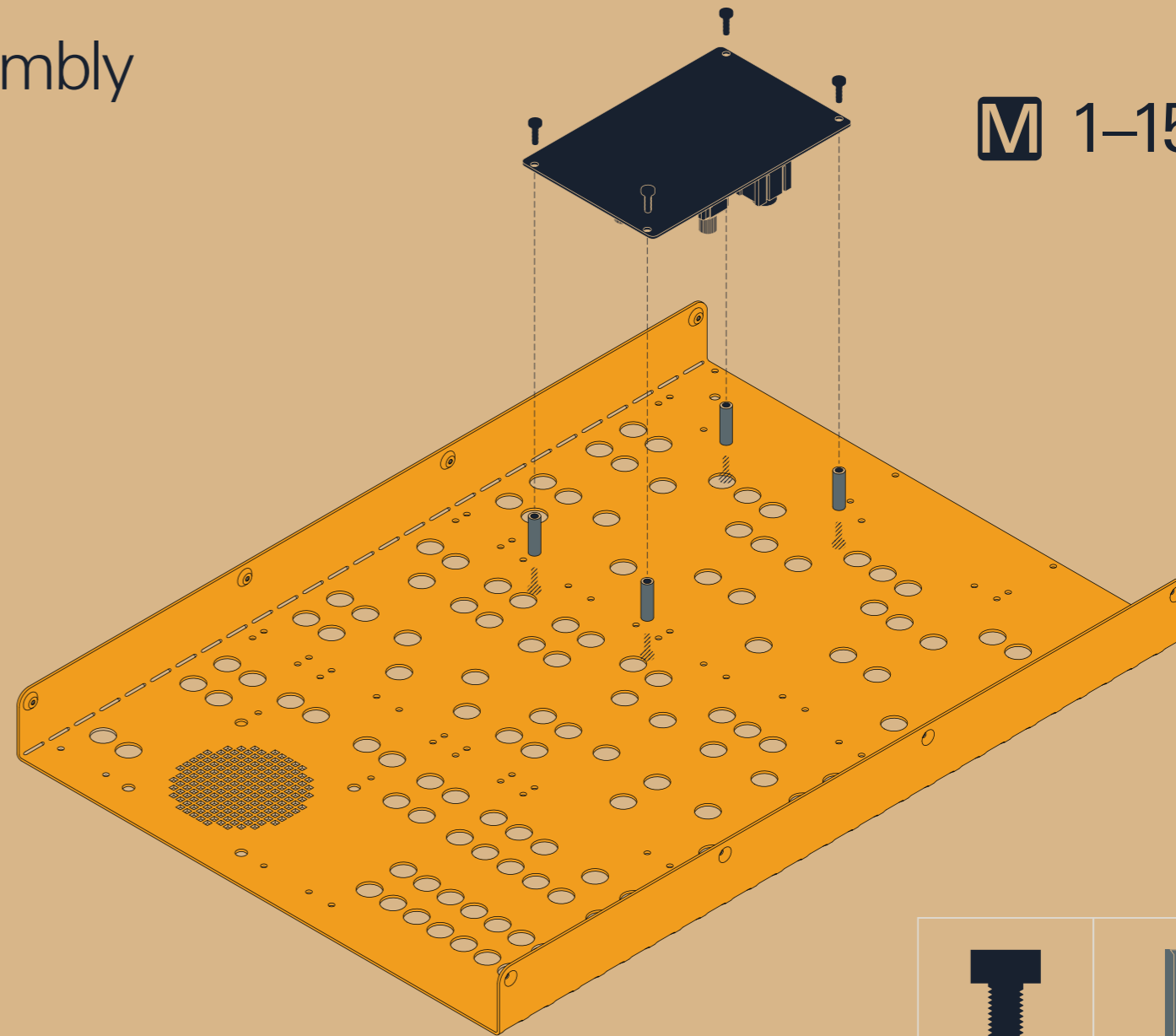


90°



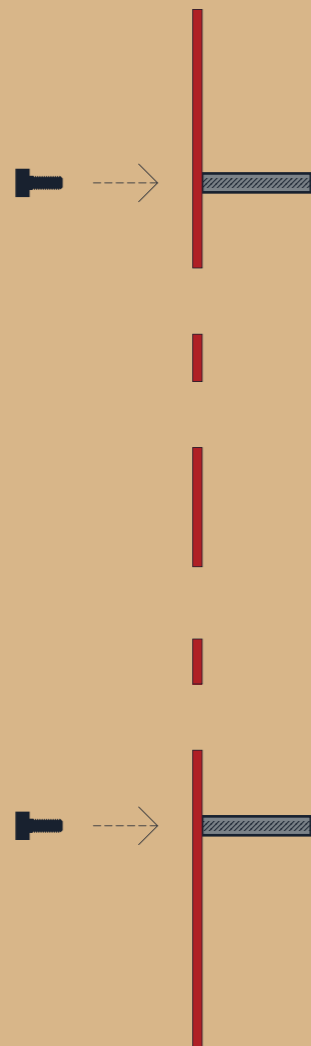
assembly

M 1-15

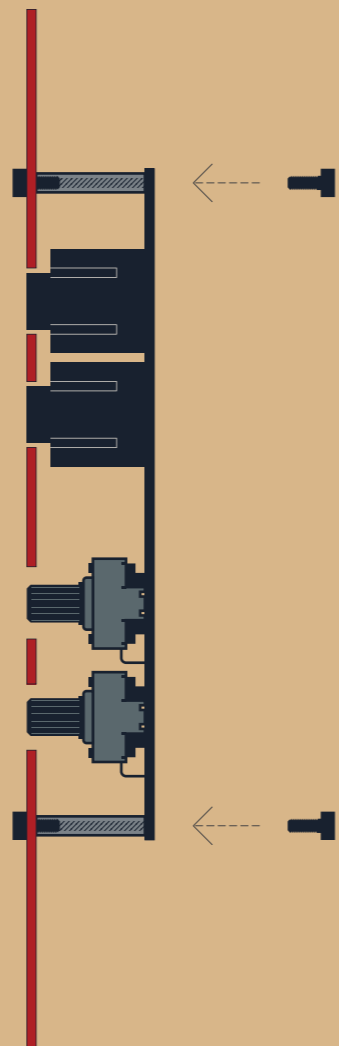


module  
assembly

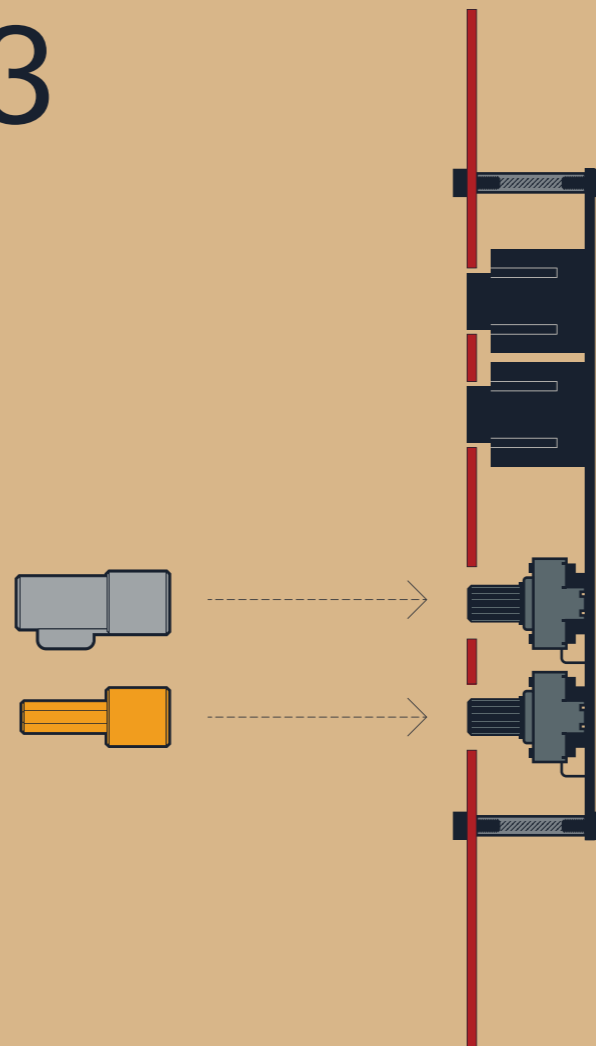
1



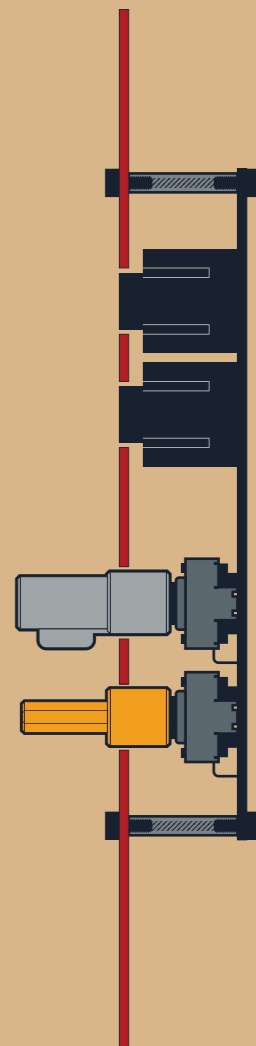
2



3

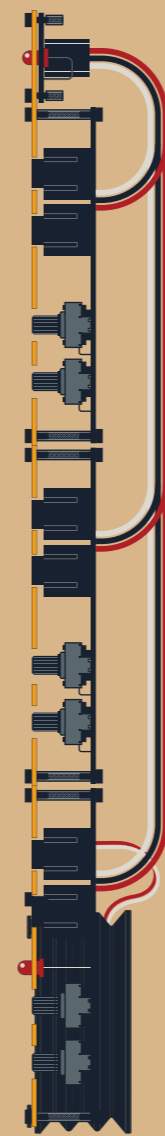
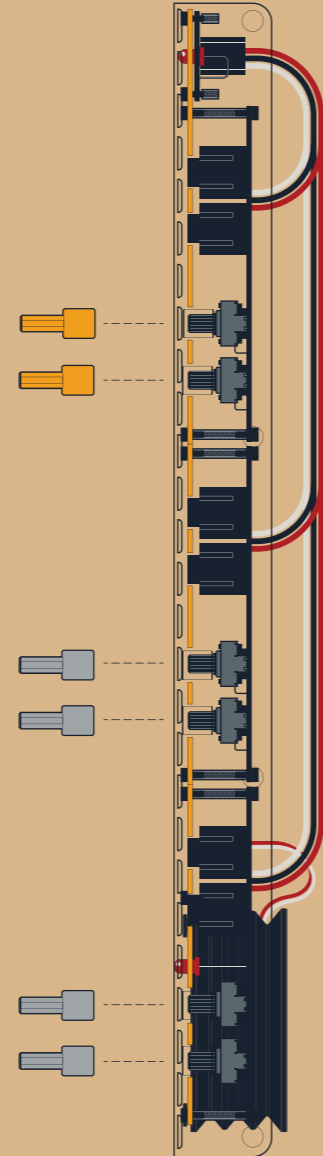
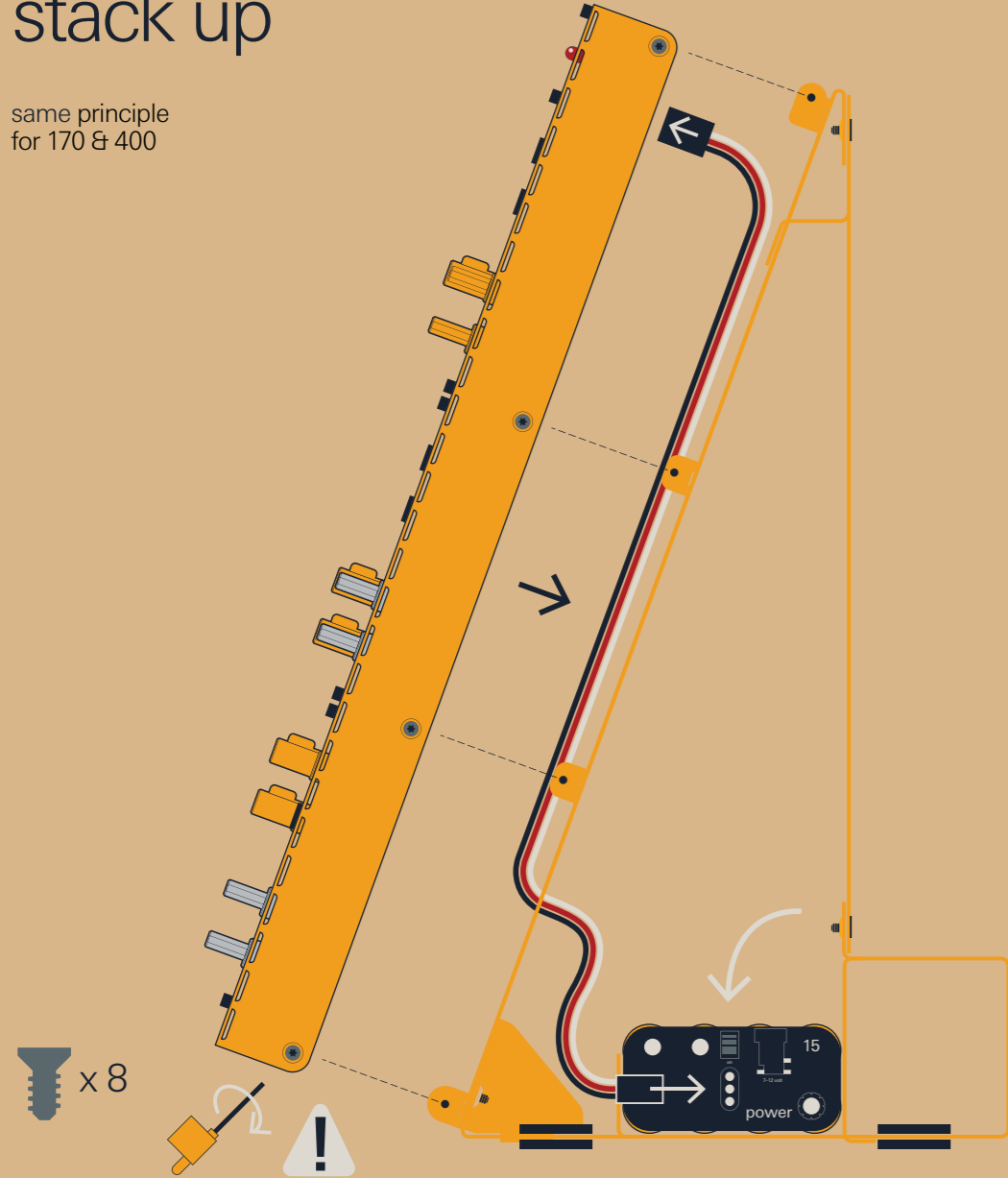


4

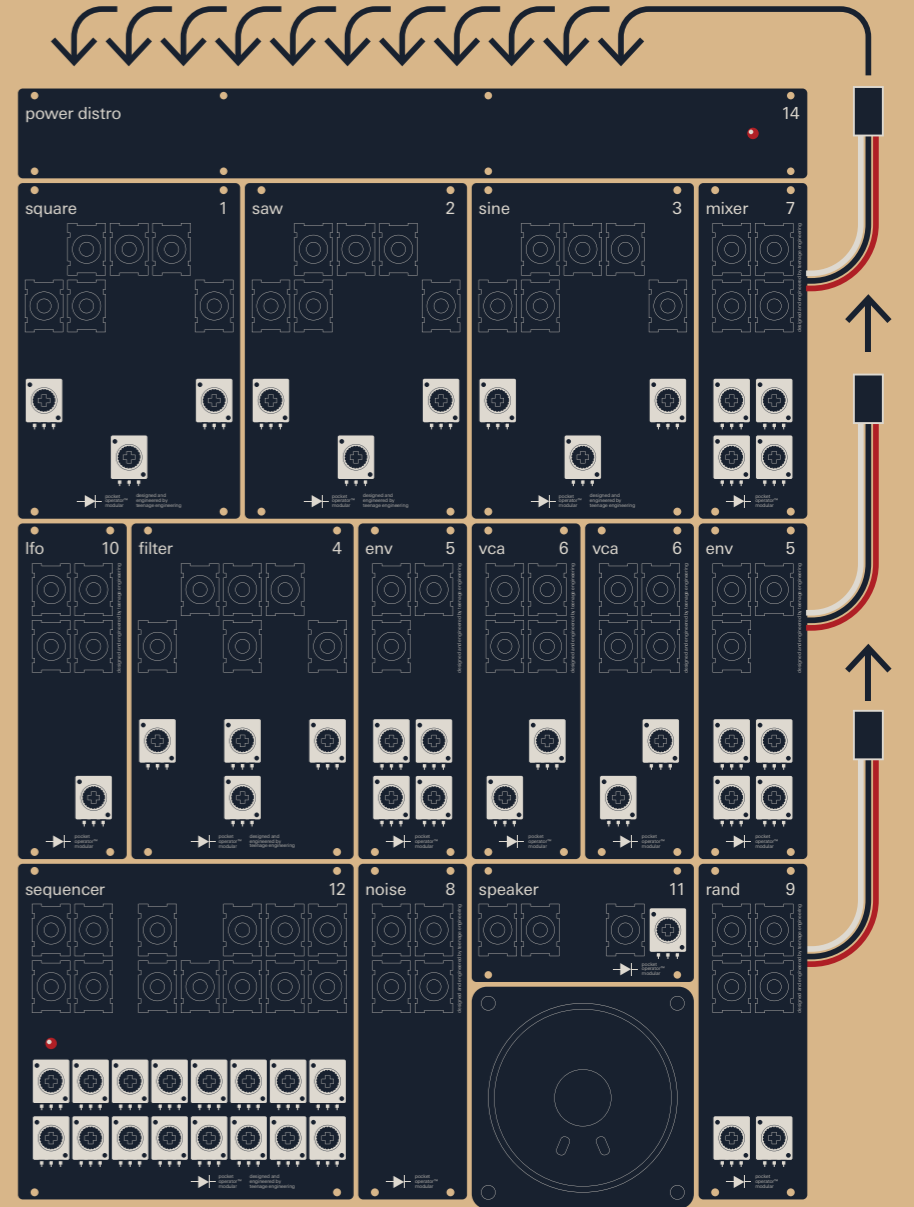


# stack up

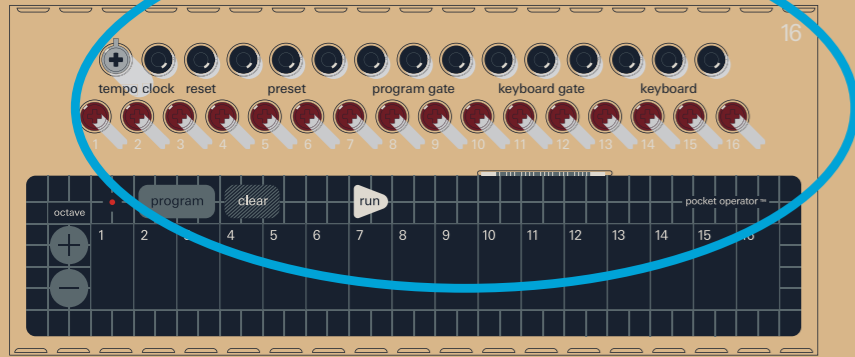
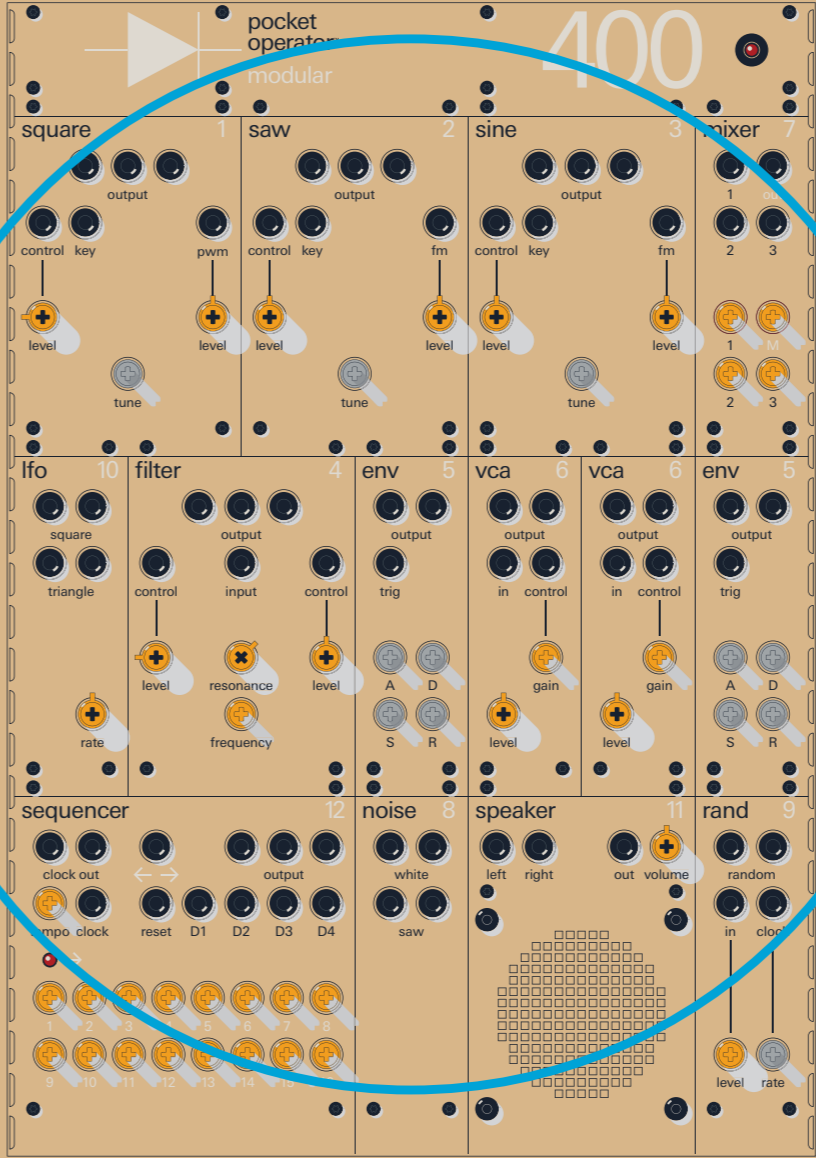
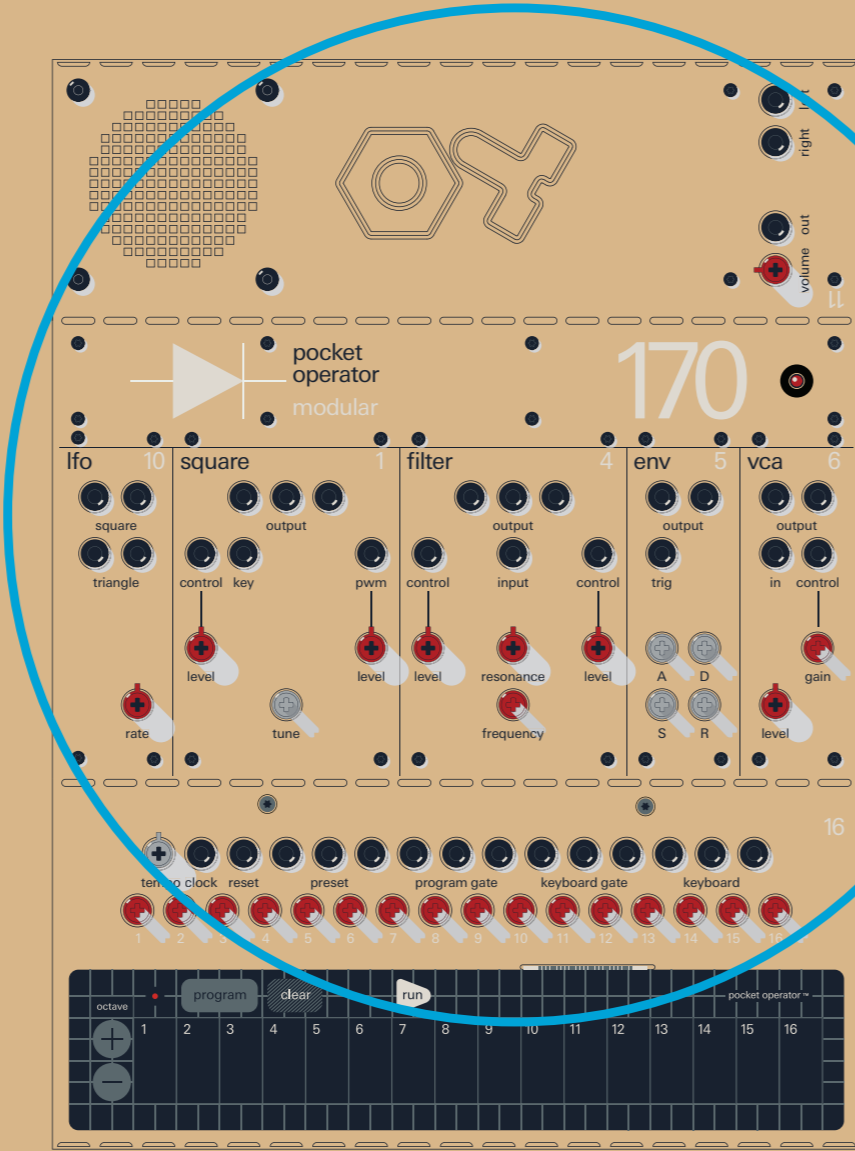
same principle  
for 170 & 400



M ▶  
module  
assembly



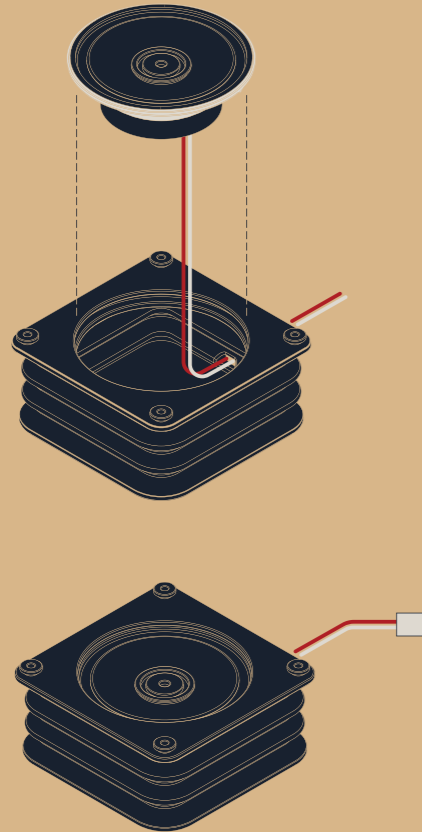
# knob color layout



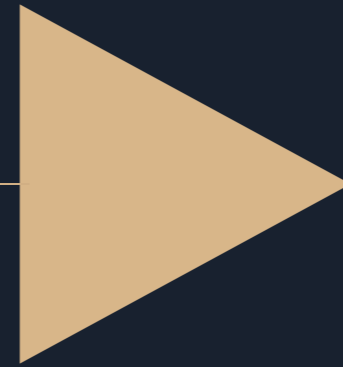
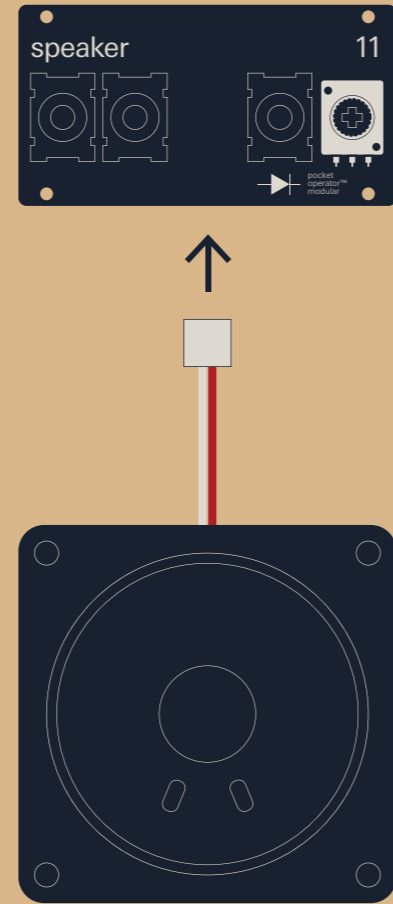
- 16 x 16 dark red knobs, x 1 dark blue slider
- 170 x 18 red knobs, x 8 red sliders
- x 5 dark blue sliders, x 1 dark blue slider
- 400 x 25 yellow knobs, x 13 yellow sliders
- x 12 dark blue sliders

speaker  
assembly

1



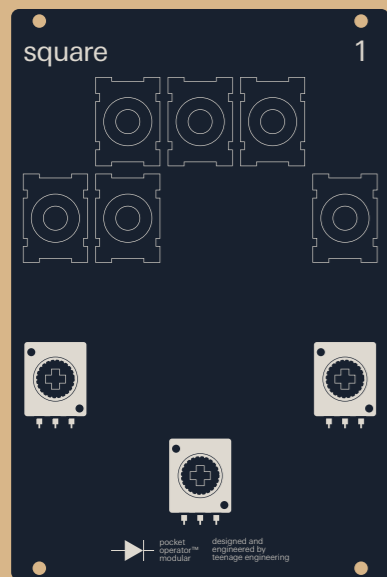
2







1

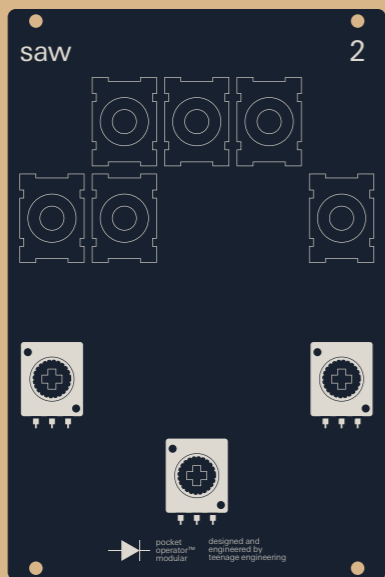


### square

square oscillator

rich in odd harmonics, the square wave oscillator is great for hollow basses and screaming leads. the pulse width modulation (pwm) input makes it possible to generate a faux two oscillator detune sound.

2

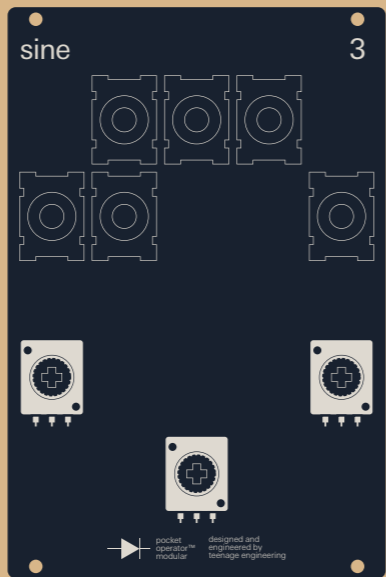


### saw

sawtooth oscillator

containing both the odd and even harmonics, the sawtooth is great for string type of sounds. the linear frequency modulation input (fm) easily brings you into the sci-fi domain.

3

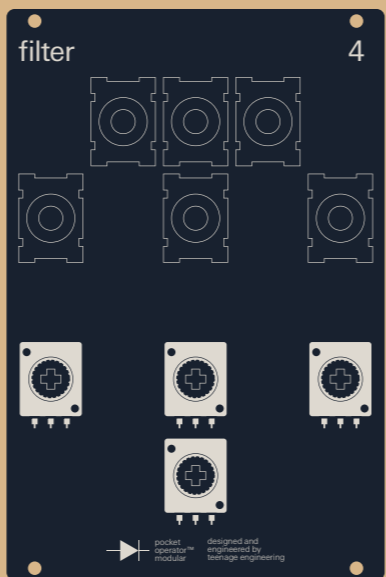


### sine

sine oscillator

with no overtones the pure sine wave is a jack of all trades. from pure bass to dub sirens, it's the army knife of a modular system. the linear frequency modulation input (fm) easily brings you into the sci-fi domain.

4

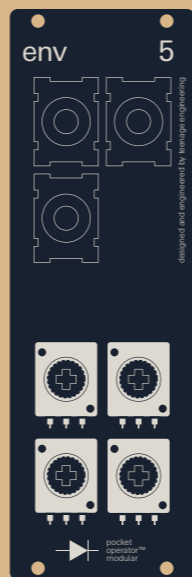


### filter

low pass filter

shape your sound with the 24db/oct low pass filter. get lost in space while tweaking the resonance and frequency pots..

5

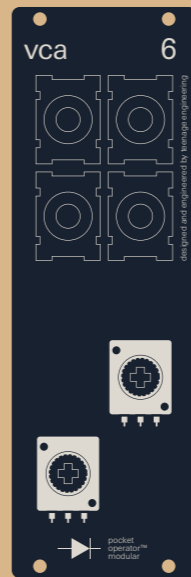


### env

envelope

a classic. attack, decay, sustain and release. give your sonic creation the contour it deserves. triggered by any signal that crosses the two volt threshold.

6

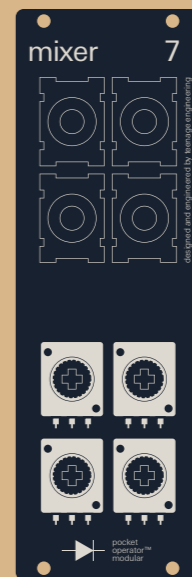


### vca

voltage control amplifier

automate your volume! feed it control voltage and your signal will adapt accordingly. best friends with the envelope for classic configurations, and your oscillator in wired configurations.

7



### mixer

3-channel mixer

a necessity in all modular systems. three inputs, one output with volume control over both the individual inputs as well as the master output.

8



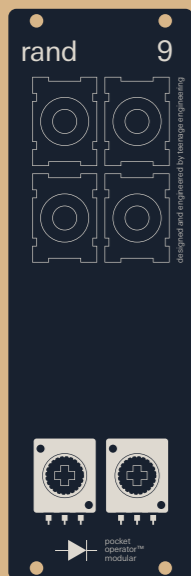
### noise

2 x noise

the white noise contains noise equal over the whole spectrum. the saw output is a perfect companion to the sample and hold.

M

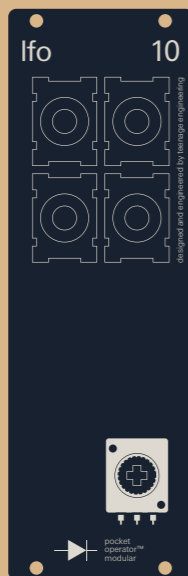
9



rand

randomise your music with the sample and hold. any input is sampled and then presented at the outputs. rate can be controlled both externally and internally, but always needs an external signal to sample. experiment with both receptive and random sources as the sample input.

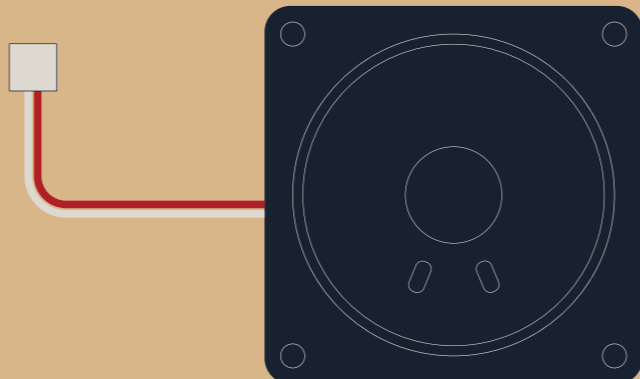
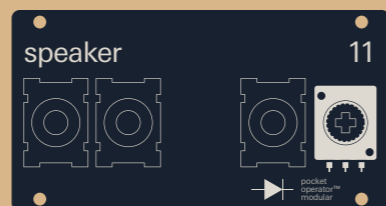
10



lfo

low frequency oscillator generating both square as well as triangle waves, the low frequency oscillator is the perfect tool to spice up your patches. great in everything from automated filter sweeps to syncing the clocks.

11

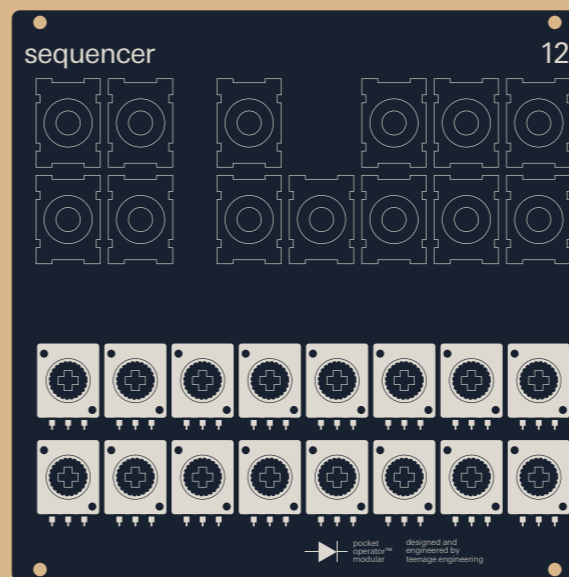


speaker

amplifier + speaker bellow

cables go in, sounds come out. show off your amazing patch to the rest of the world. let them hear it.

12



sequencer

16-step sequencer

sixteen steps of control, override the internal clock with the clock input. make it go backwards with the arrow input. jump to the first step, the second, fourth or eight

step with the reset and binary inputs. or just reset it to the first step by setting the stage pot to max.

13



mystery module

number 13

won ton 'animal' chin entered the modular scene with this unit back in the late 80s during a skate /modular retreat. the rumor says that this module will never be for sale, just given away at special outdoor gatherings.

14



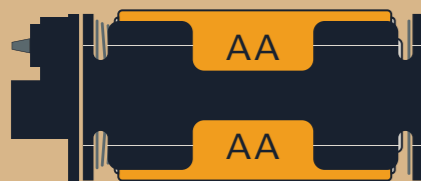
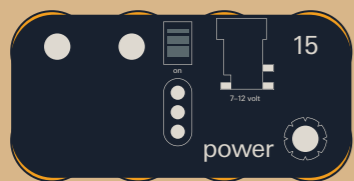
power distro

20 unit power hub

the central nervous system and the connection hub for all the power. bend the led 180° and fit it through the hole to get front panel light action

M

15

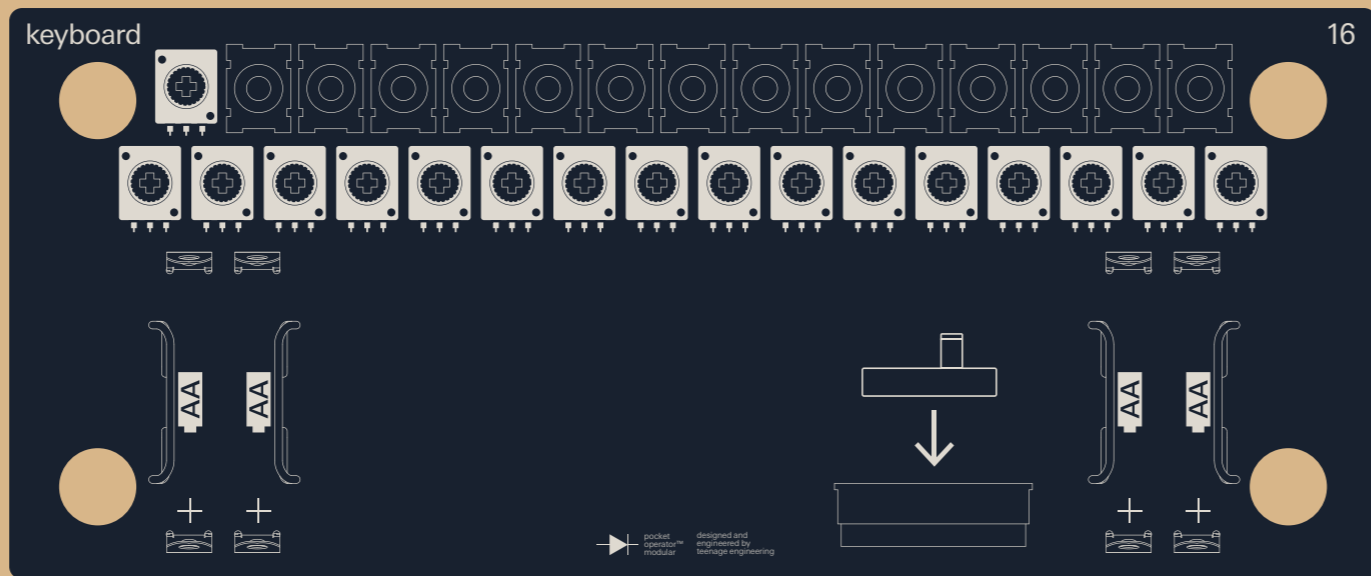


psu

power pack

small, portable, battery powered. delivers plus and minus twelve volts to support your favorite system.

16



keyboard

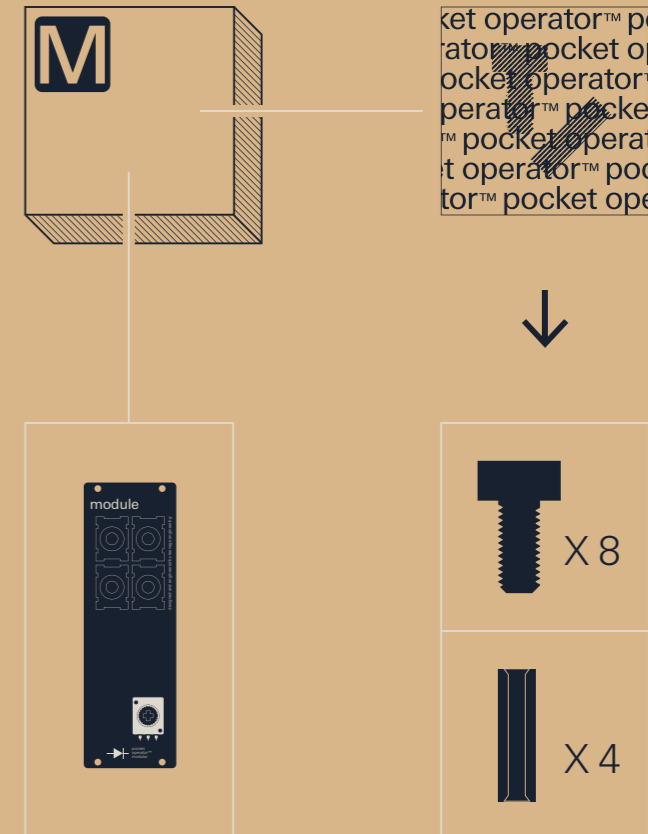
16-note membrane keyboard

the perfect interface to control your 170 and 400 systems! each key is available as both a chromatic and a preset output. play the keyboard like a virtuoso or program a sequence of arbitrary voltages and gates to

manipulate your patches. the possibilities are endless. the internal clock can be overridden with an external clock input. program gate will output any incoming clock signal and the keyboard gate can be program-

med to rest on selected steps. press the [program] key and punch in your desired notes, press [program] again to stop the input. press [run] to start the sequence. note: if you're using an external clock make sure it's running too...

box content



# keyboard

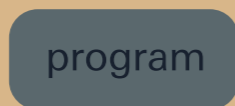
you can program the **16** steps to playback your recorded notes. this function is called a sequencer.

sie können die **16** programmieren, um ihre aufgenommenen noten abzuspielen. diese funktion wird sequencer genannt.

vous pouvez programmer le **16** pour lire vos notes enregistrées. cette fonction est appelée séquenceur.

è possibile programmare il **16** per riprodurre le note registrate. questa funzione è chiamata sequencer.

**16** 番をプログラムすることで、レコーディングされたノートを再生することができます。これはシーケンサーと呼ばれる機能です。



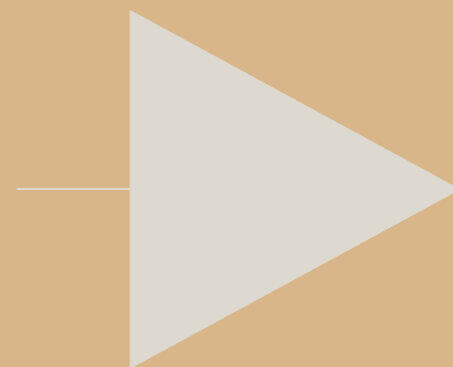
press **program** key to start writing notes into memory. red led indicates write mode



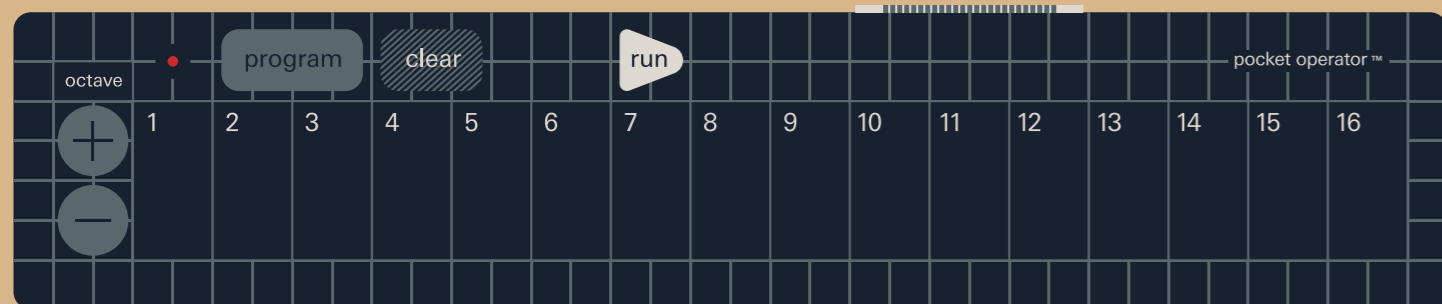
press **run** to start playback of the note program



press **clear** to erase memory and start over



# patches



# let's patch

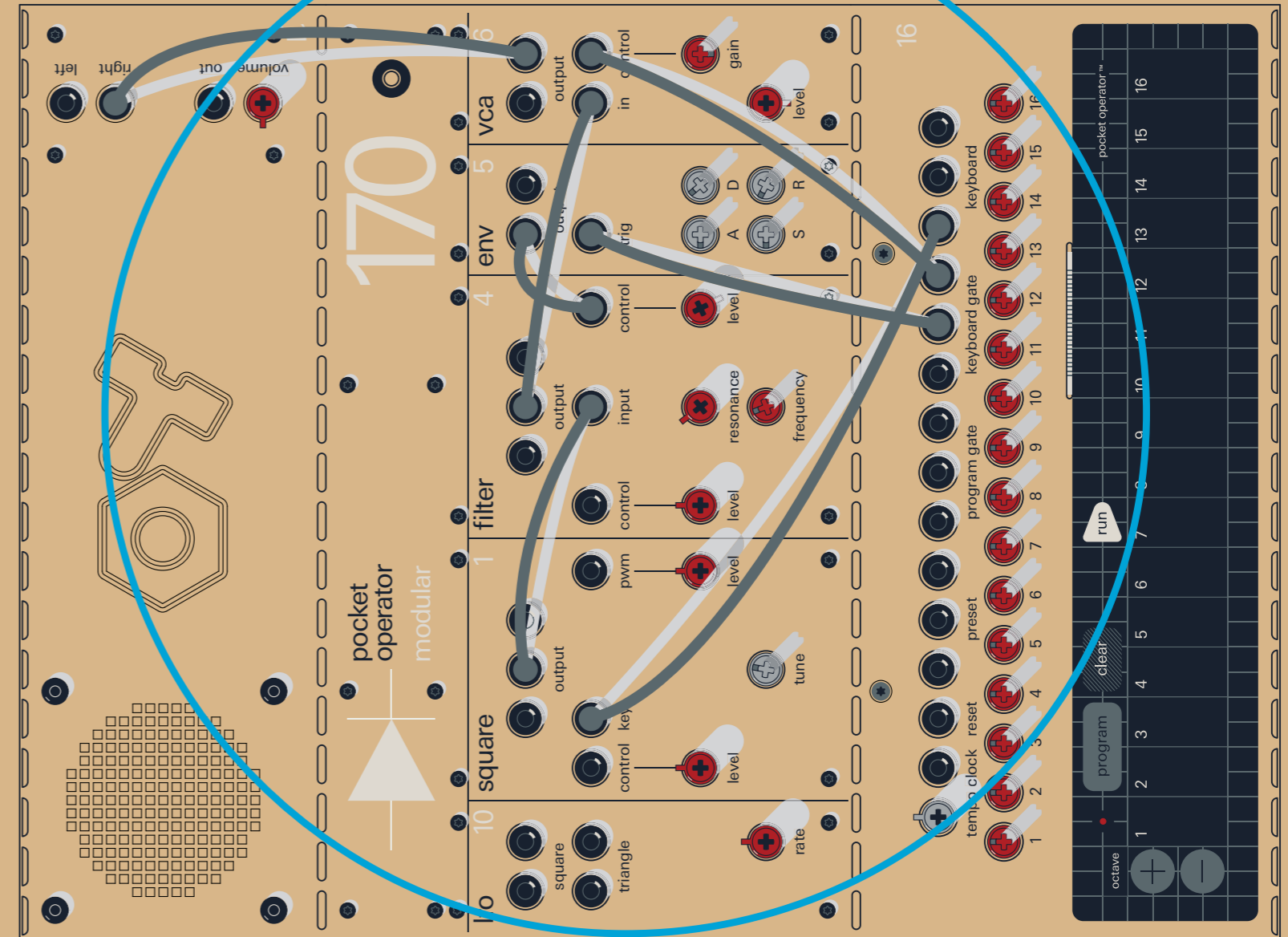
in a modular synthesizer, you can patch anything to anywhere. don't worry, nothing will break if you do it wrong. in fact, there is no wrong, but not everything you patch will be musically useful, that's up to you to decide. real-time hands-on experimentation is the greatest part about modulars. it will change your mind and your soul. here are some examples of patches to get you started.

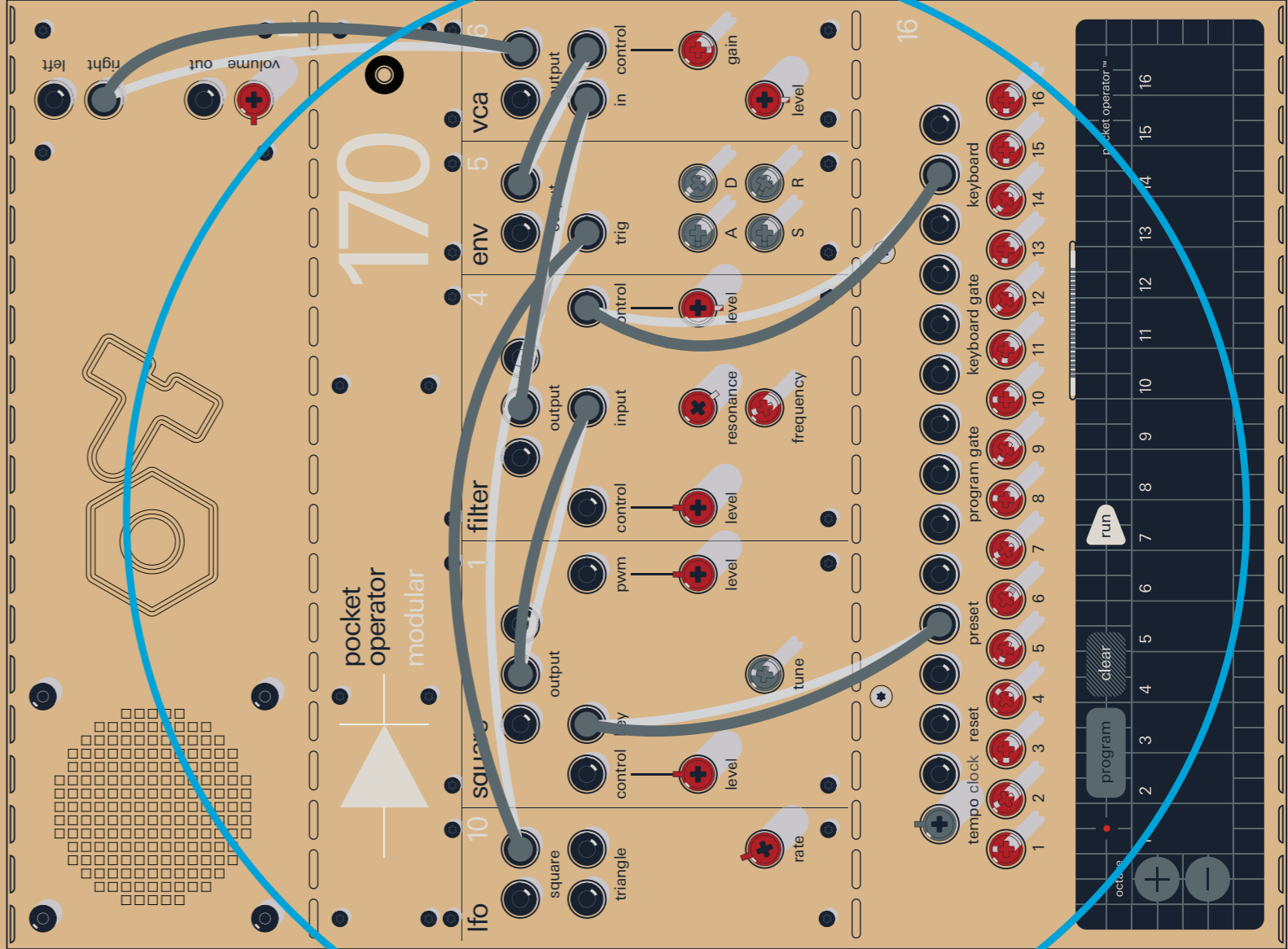
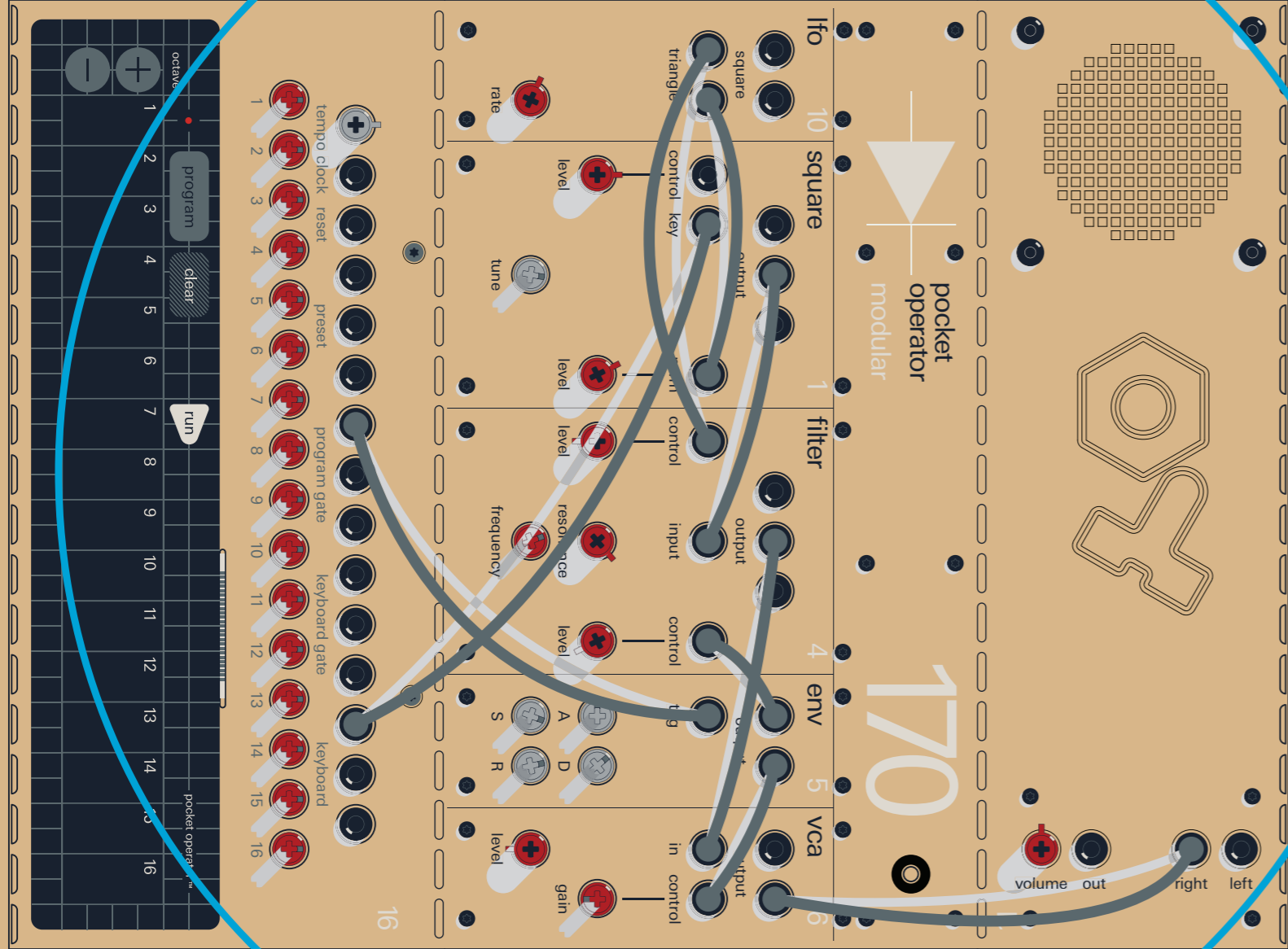
in einem modularen synthesizer können sie alles an jeden ort patchen. mach dir keine sorgen, nichts wird brechen, wenn du es falsch machst. in der tat, es gibt kein falsches, aber nicht alles, was sie patchen, wird musikalisch nützlich sein, das liegt an ihnen zu entscheiden. echtzeit-experimentieren in echtzeit ist der grösste teil von modulars. es wird deine meinung und deine seele verändern. hier sind einige beispiele für patches, mit denen sie beginnen können.

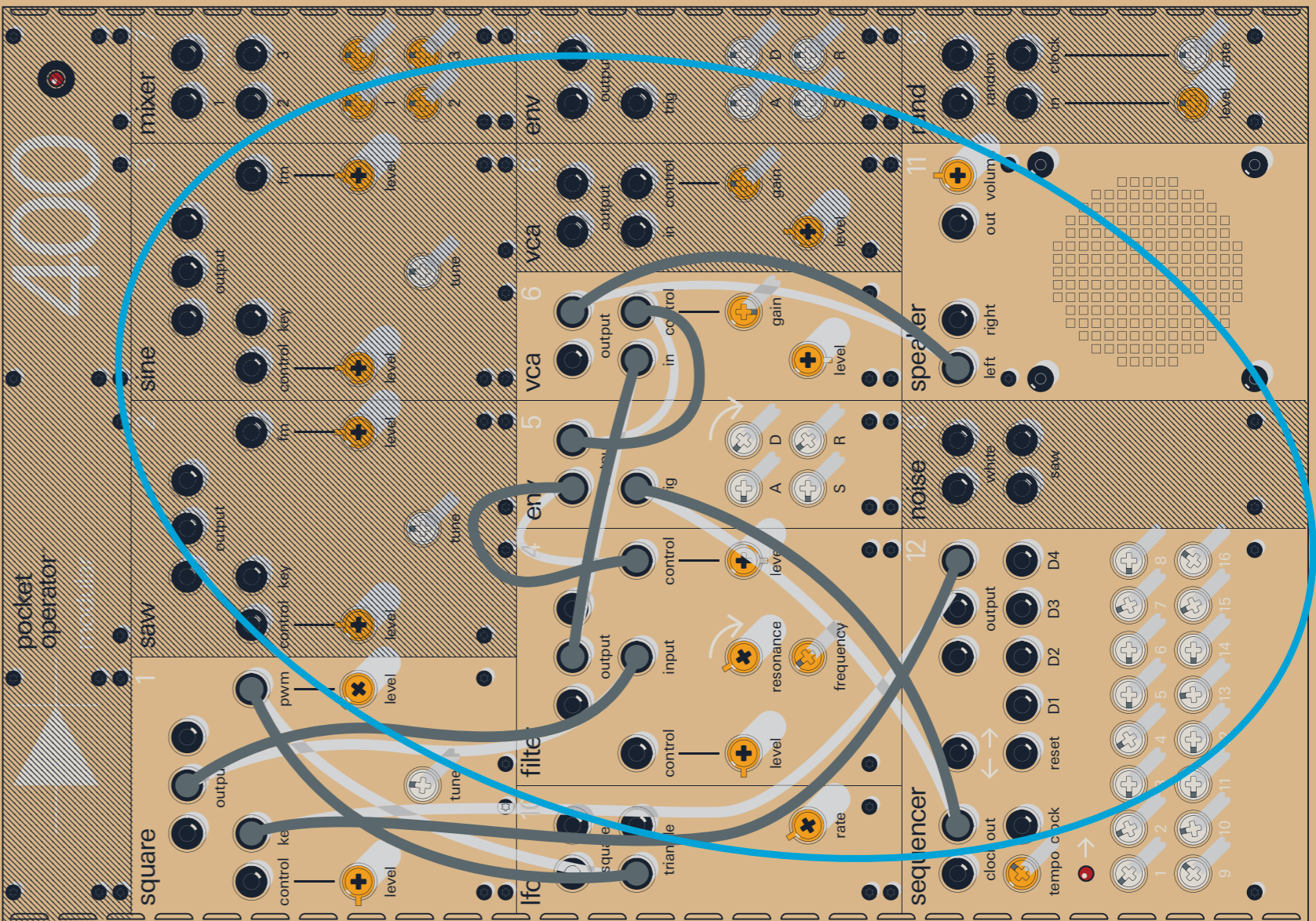
dans un synthétiseur modulaire, vous pouvez patcher n'importe où n'importe où. ne vous inquiétez pas, rien ne se cassera si vous le faites mal. En fait, il n'y a pas de problème, mais tout ce que vous corrigez ne sera pas utile sur le plan musical, à vous de décider. l'expérimentation pratique en temps réel est la partie la plus importante des modules. cela changera votre esprit et votre âme. Voici quelques exemples de correctifs pour vous aider à démarrer.

in un sintetizzatore modulare, puoi applicare qualsiasi patch ovunque. non preoccuparti, nulla si romperà se lo fai male. in effetti, non c'è nulla di sbagliato, ma non tutto ciò che patch è utile per la musica, dipende da te decidere. la sperimentazione pratica in tempo reale è la parte più importante delle modulars. cambierà la tua mente e la tua anima. Ecco alcuni esempi di patch per iniziare.

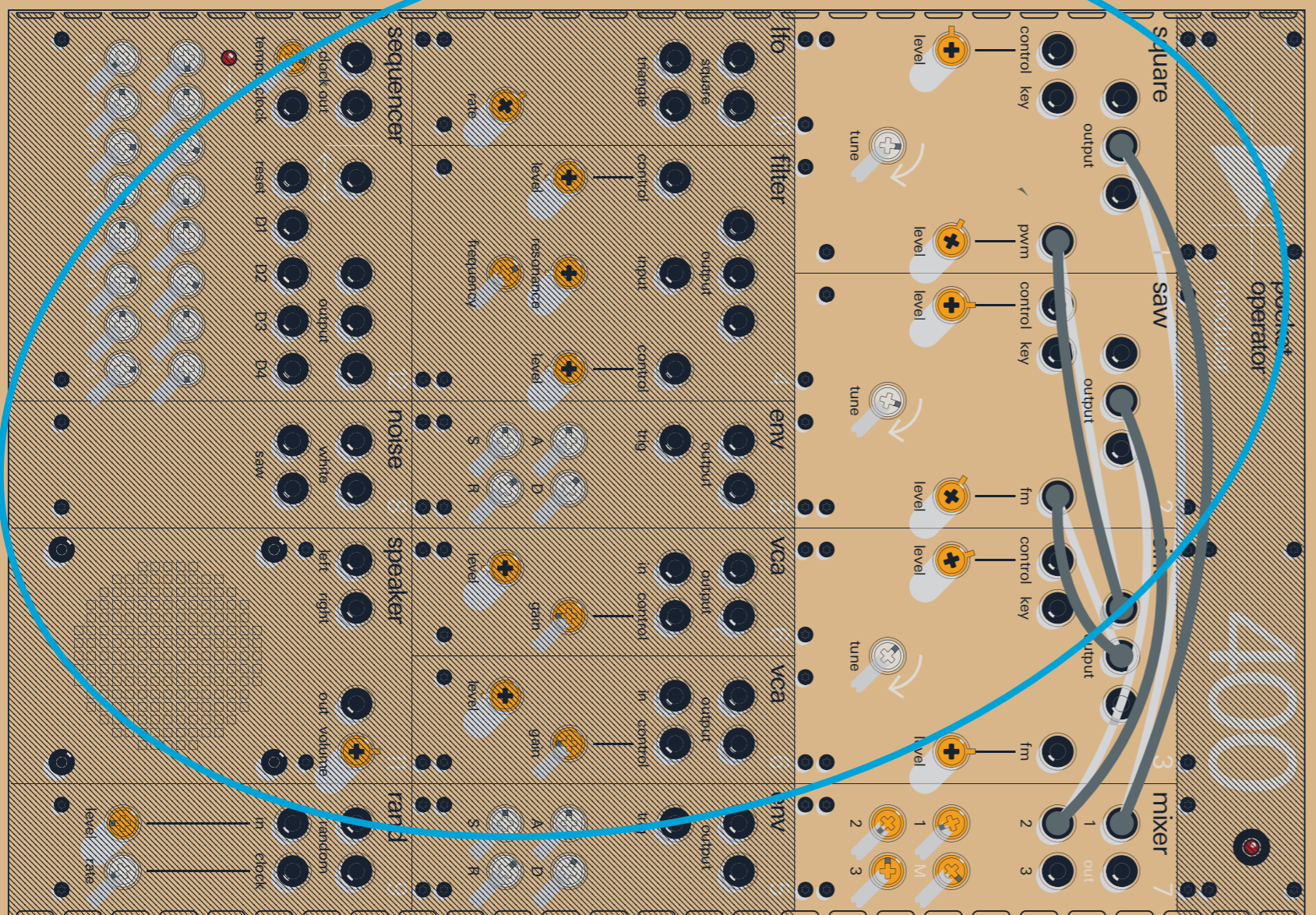
モジュラー・シンセサイザーでは、あらゆるものをあらゆる場所へ自由にパッチングできます。ご心配なく、パッチを間違っても破損することはありません。実際のところ、間違いなどというものはなく、パッチしたものが音楽的に使えるとは限らない、ということです。これはあなたの決定にかかっています。リアルタイムかつハンズオンで実験できることこそがモジュラーの最も素晴らしい点であり、思考や魂をも変えてしまうものです。下記いくつかのパッチ例をご用意しましたので、ご参考ください。







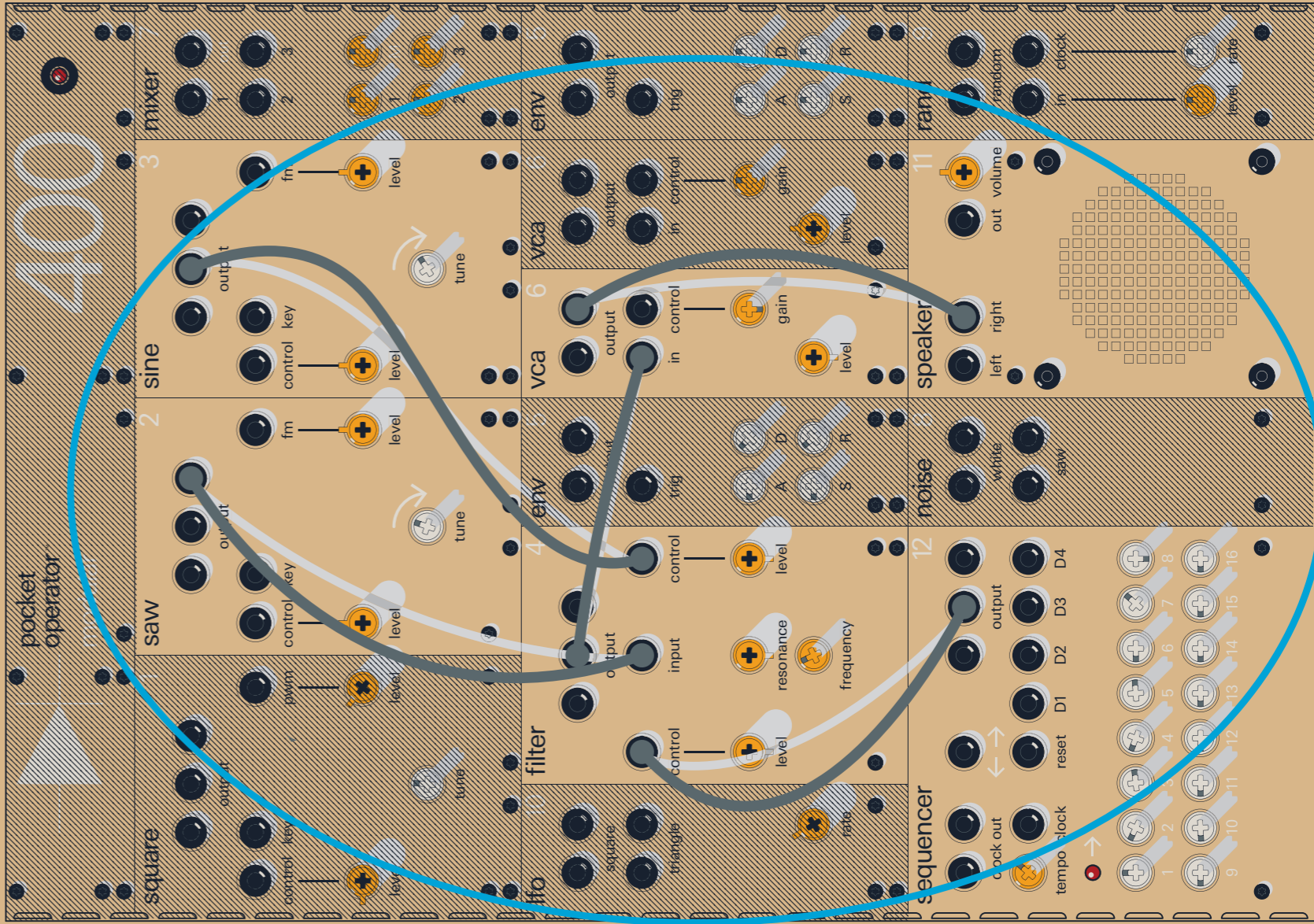
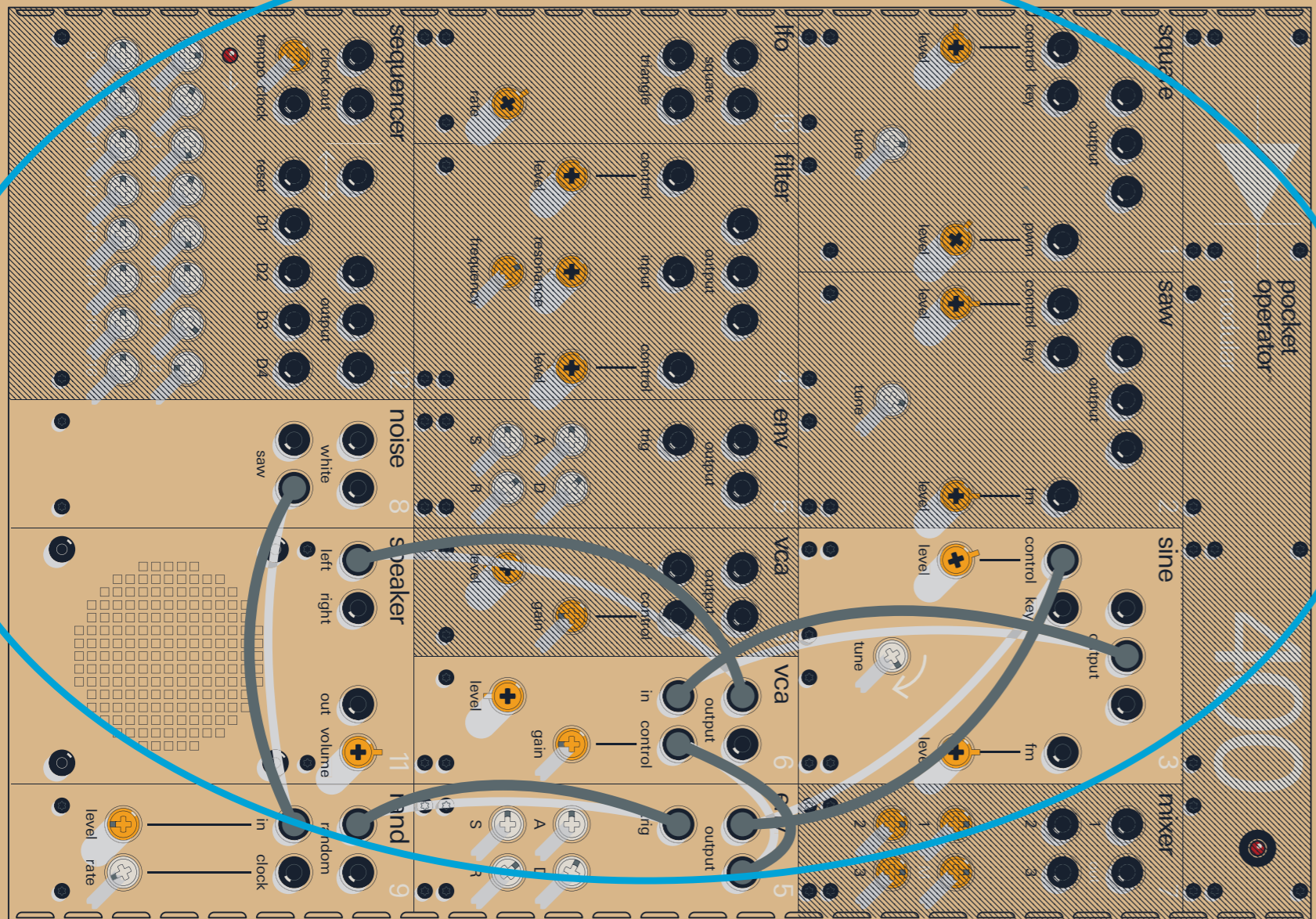
corpus sequentia



obese drone

patch note: start with square and saw oscillator tuned to the same frequency

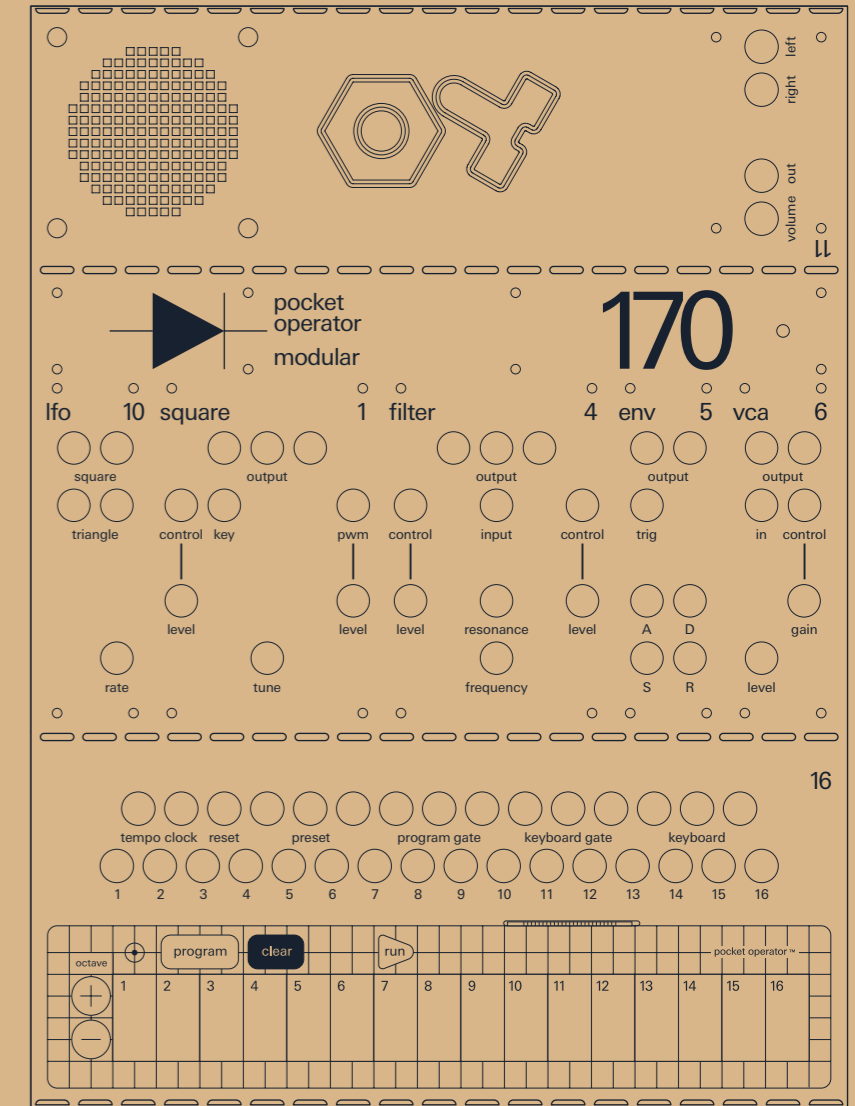
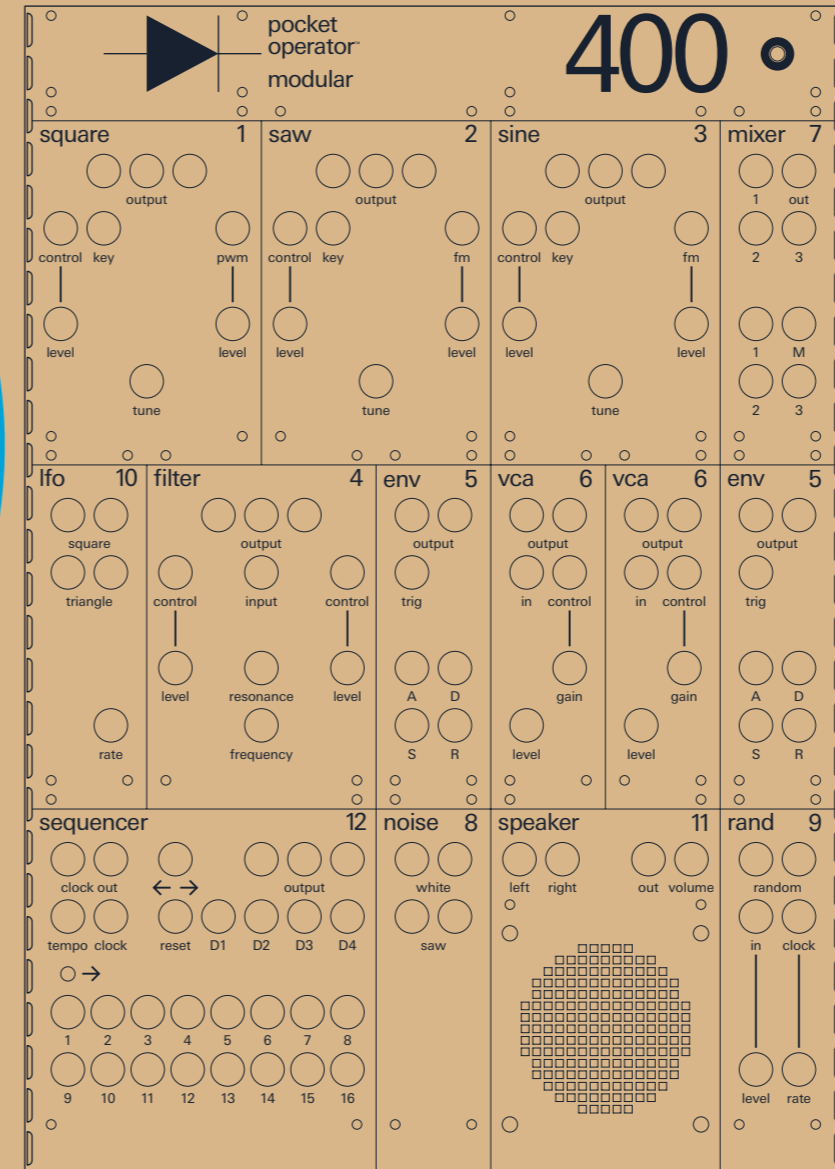
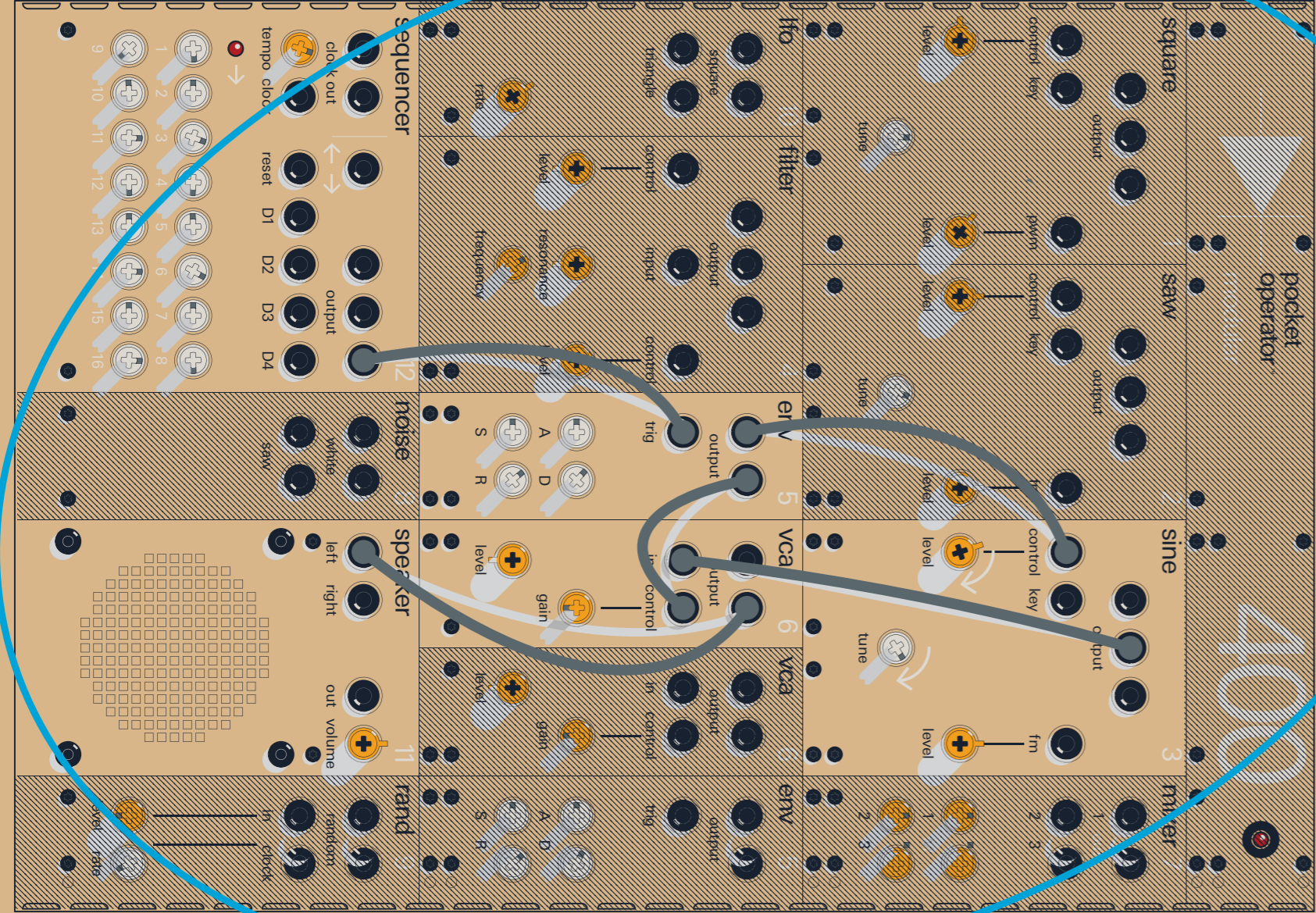
jazz drummer



song from tibet



bird feeder

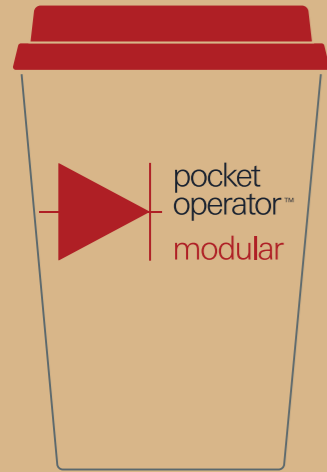


copy page and your own patches.

# add-on's

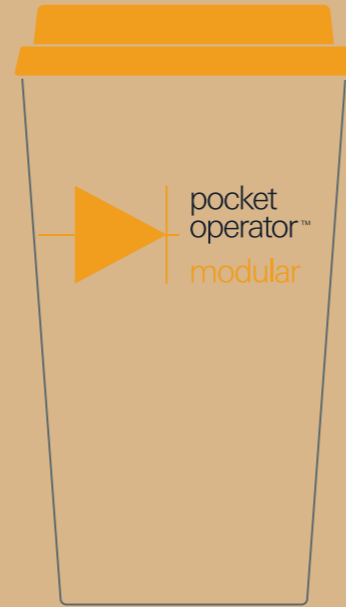
cable cup  
'gulp'

L 15 cm  
3.5 mm jack

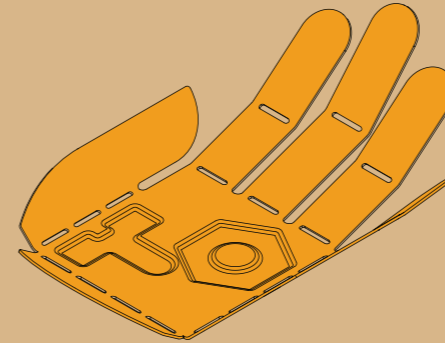


cable cup  
'big gulp'

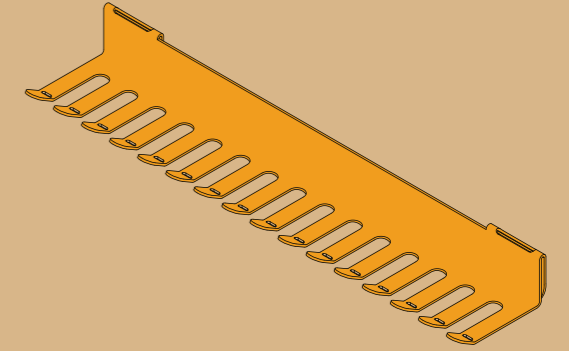
L 30 cm  
3.5 mm jack



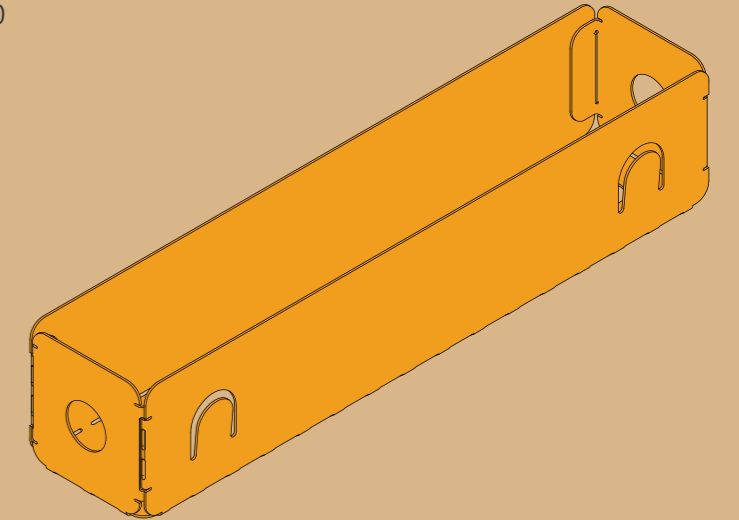
foldable hand  
promo



cable fork  
for 400

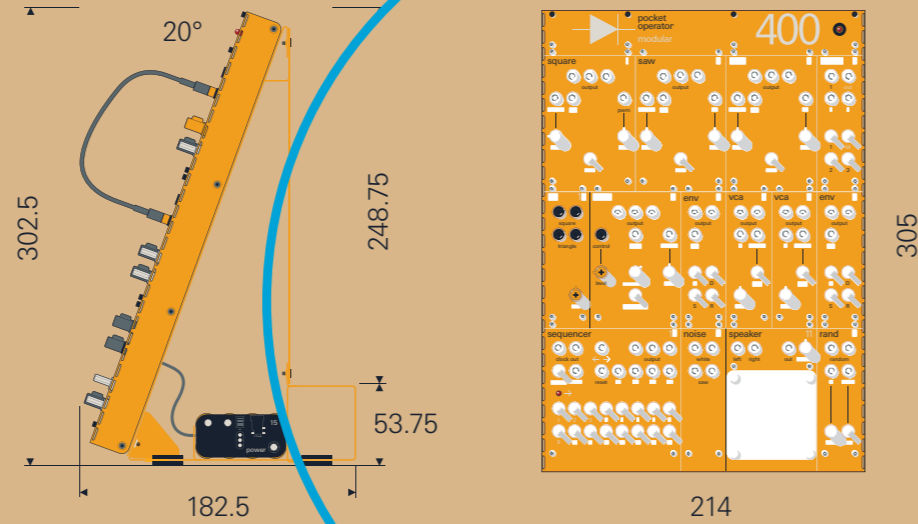
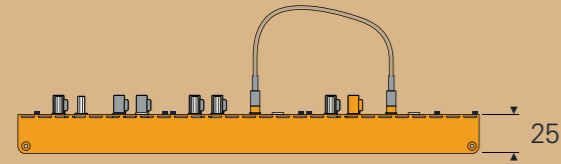


cable drawer  
for 400

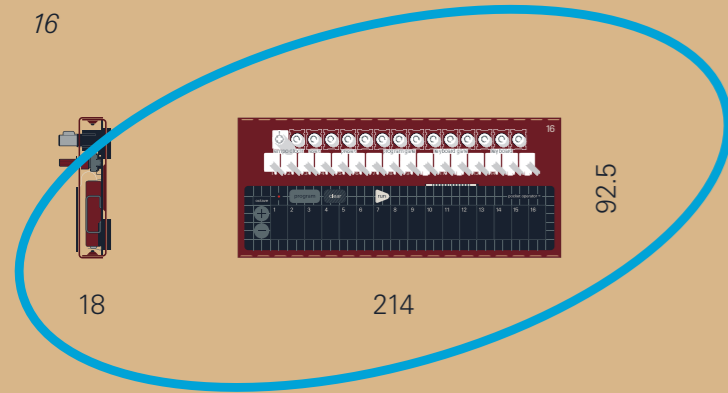


# measurements

400



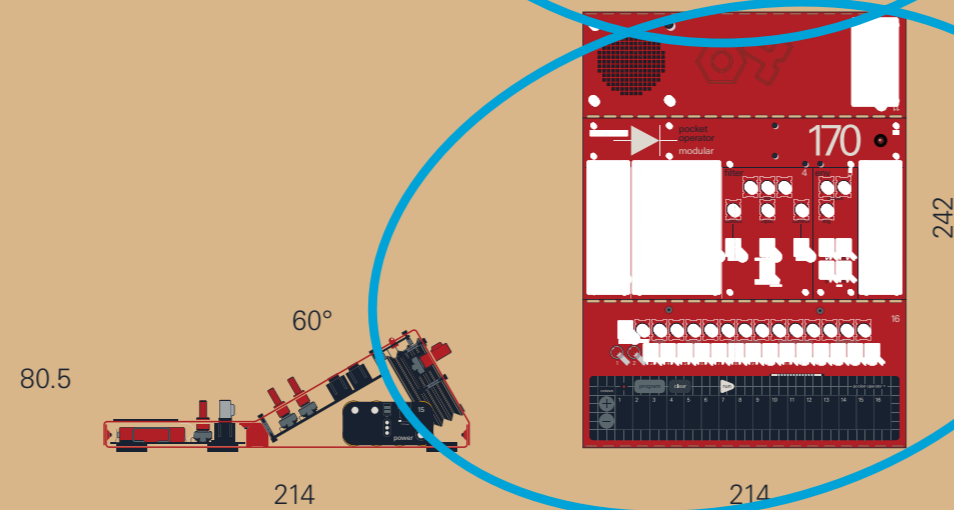
16



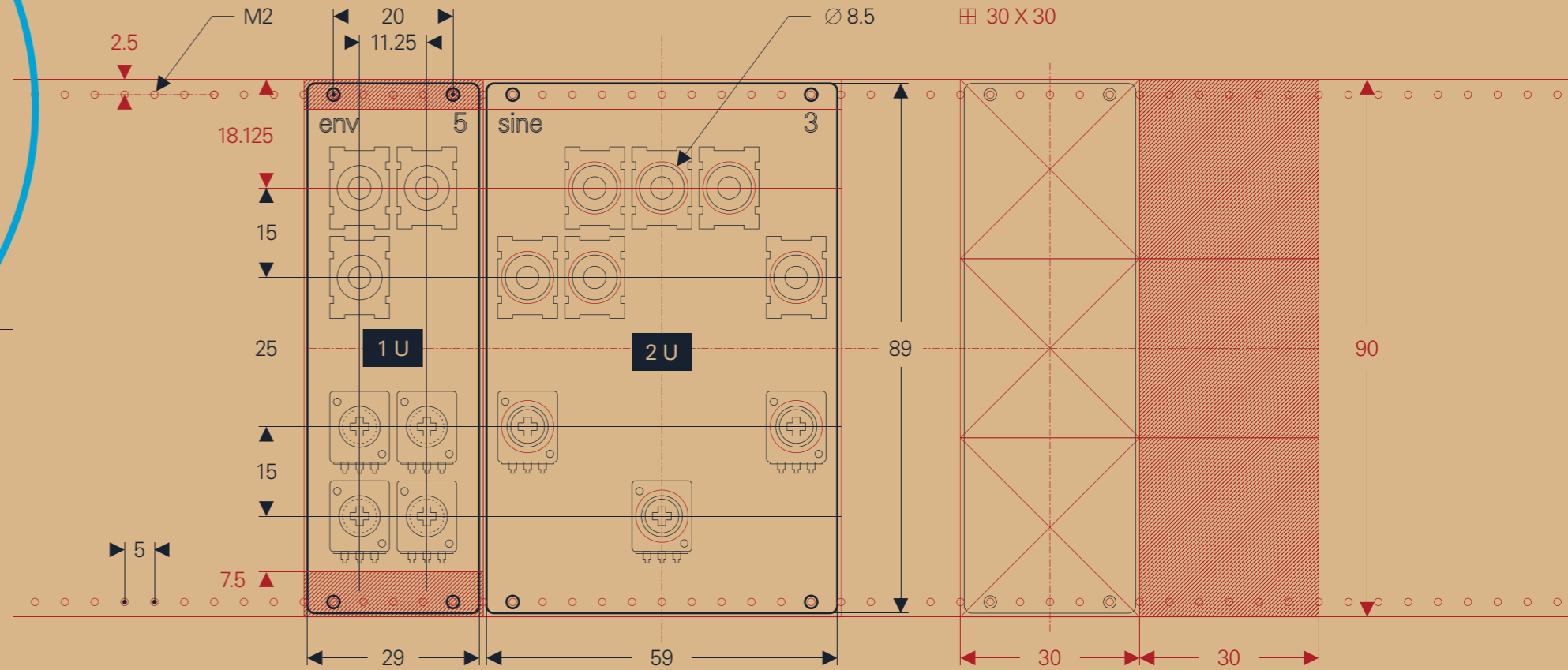
SCALE 1:5

all dimensions in mm

170



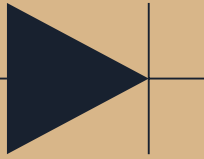
# system dimensions



SCALE 1:1

all dimensions in mm

grid actual



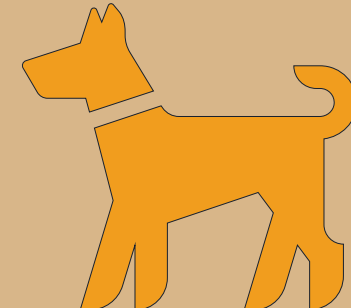
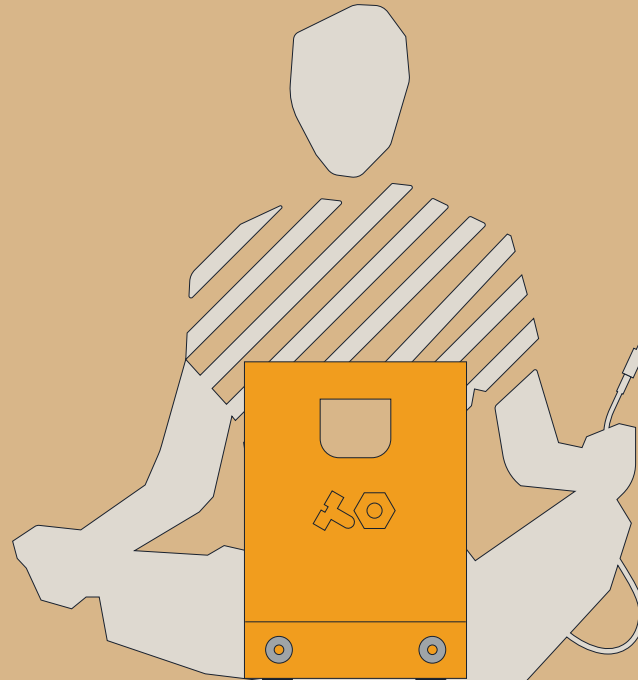
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## 1-15

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## 16

SHEET METAL CHASSIS MEMBRANE KEYBOARD

16 IS A MEMBRANE KEYBOARD WITH BUILT-IN PROGRAMMABLE SEQUENCER

1 MODULE

4 X AAA BATTERY POWERED

## 170

PRE-CONFIGURED 1-ROW CHASSIS WITH BUILT-IN KEYBOARD

170 IS A MONOPHONIC ANALOG SYNTHESIZER WITH BUILT-IN KEYBOARD AND PROGRAMMABLE SEQUENCER

7 MODULES

4 X AAA (KEYBOARD)  
8 X AA (12V POWER PACK)

## 400

PRE-CONFIGURED 3-ROW CHASSIS WITH CARRYING HANDLE

400 IS A COMPETENT MODULAR SYNTHESIZER WITH WARM NATURAL ANALOG SOUND. INCLUDES A 16-STEP SEQUENCER AND THREE OSCILLATORS

14 MODULES

8 X AA (12V POWER PACK)

770-0005