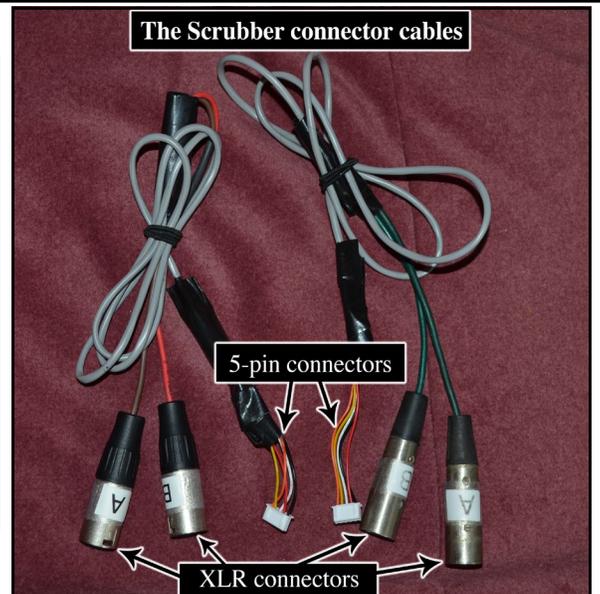
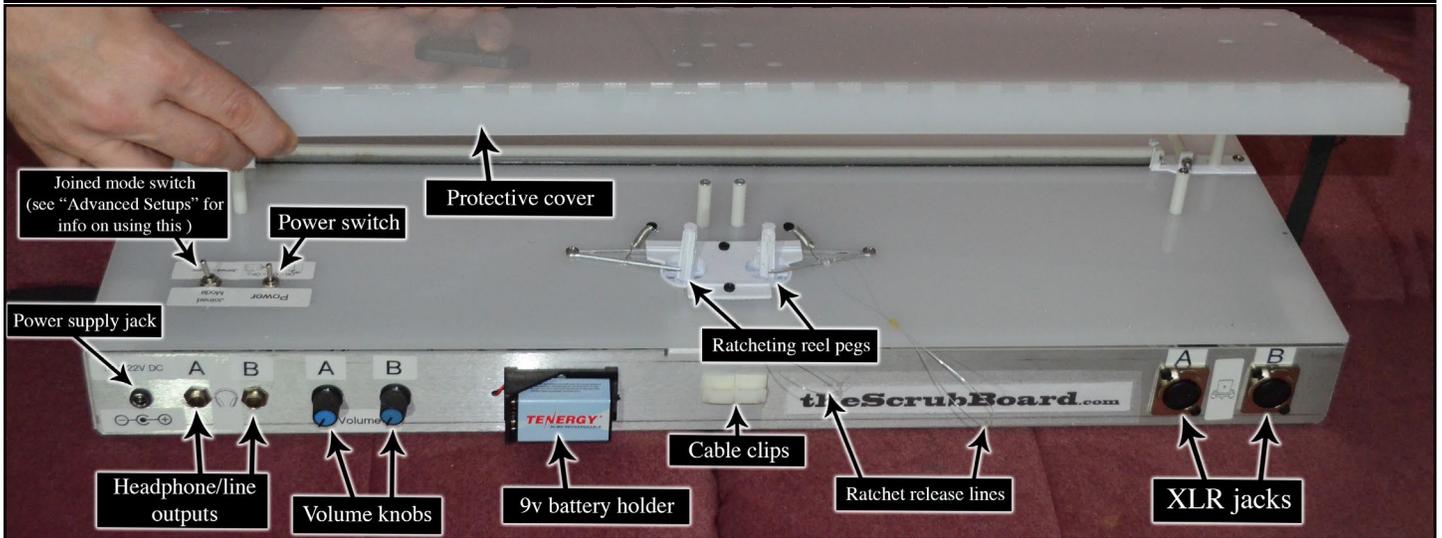
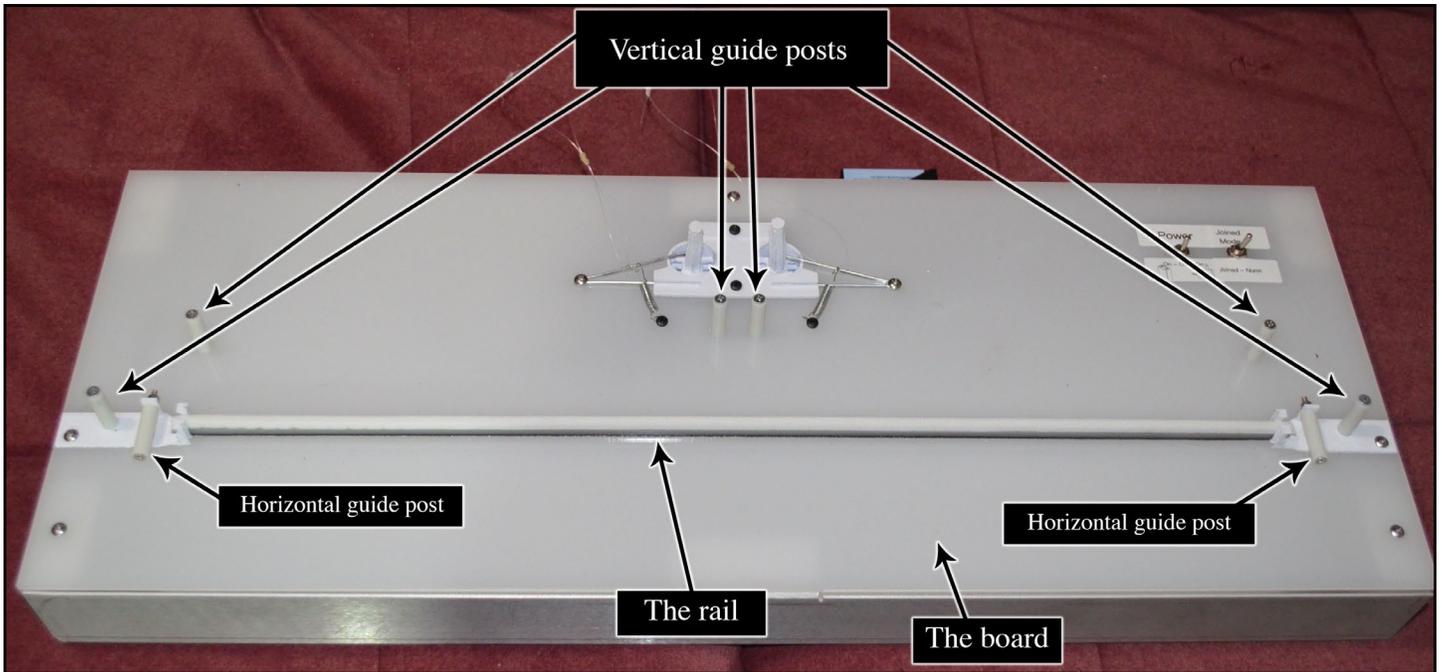


ScrubBoard Kit Manual

Parts overview



Initial Setup

If you purchased an assembled ScrubBoard, it should be ready to go right out of the box. Just unhook the strap to remove the protective cover (fig. 1), but be sure to hang on to it, because even if there isn't a cassette in place, the surface of the rail is a bit fragile and should



Fig. 1, remove the protective cover

be covered when not in use. Next, if you plan to use a 9v battery, place it in the battery holder, on the rear panel. Otherwise, you'll need a DC power adapter. The ScrubBoard doesn't come with its own power supply unit, but you likely have one laying around that will work fine. Officially, the ScrubBoard's electronics require anywhere between 12 and 22 volts, but I've found that a 9-volt adapter



Fig. 2, the power supply should have the "center positive" symbol and should be connected to the power jack on the rear panel. Or place a 9v battery in the holder, also on the rear panel.

works just fine. So as long as your adapter provides DC power within this voltage range, and is center positive (meaning that it has the symbol in fig. 2), you should be all set.

When you switch on the ScrubBoard, note that its power switch has three positions (fig.3). The middle position turns it off, while the left and right positions turn it on with the battery or power supply, respectively.

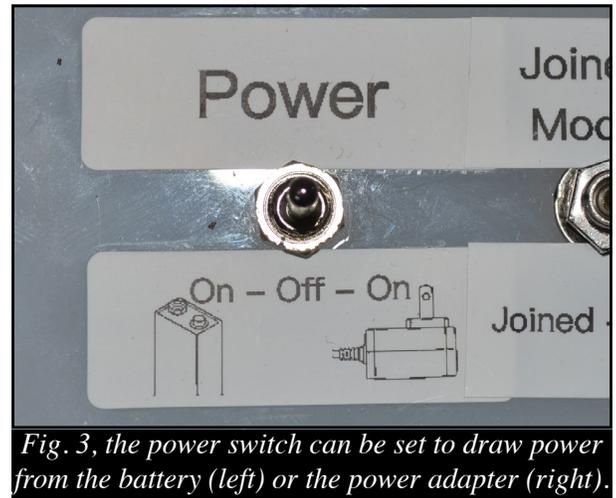


Fig. 3, the power switch can be set to draw power from the battery (left) or the power adapter (right).

Placing an Audio Cassette

First, a word of warning: Audio professionals have traditionally warned users not to ever touch audio tape with their fingers. However, these same people said not to touch vinyl records, and where would we be if everyone had taken that advice? Nonetheless, I strongly recommend that you **never use tapes that are irreplaceable!** Even though using the ScrubBoard shouldn't harm your tapes, audio tape is very thin and fragile, and anytime it is spooled out of the cassette, there is always a danger that it could be damaged.

If you have a cassette player, first cue up a spot on your cassette that you want to scratch. If you don't have one, you'll have to search for what you want by manually advancing the tape while it's on the board; this process is described in more detail in the "Changing the Position of the Tape" section. The included scratch tapes should already be cued up and ready to go. Also, keep in mind that — unlike with vinyl records — both sides of the tape will be accessible to you at the same time, regardless of which side is facing up when you place it on the board. The only thing that is affected by flipping the tape over is the direction that the audio moves. If Side A is facing up, the music on Side A will go from right to left, and the music on Side B will go from left to right. If you flip the tape over, these directions are reversed. We'll get more into how to access both sides of the tape in the Advanced Setups sections.

When your tape is cued up, you can use a pen or a key or even a fingernail to pull the tape out of the center opening in the bottom of the cassette (fig. 4). Just be careful not to dislodge that little square of felt behind the tape, because the cassette will not be playable in a regular cassette player if that piece is not in place. Once you've pulled out enough to grab hold of, draw out at least two feet of tape.

Now place the cassette onto the board so that the pegs fit into the two reel holes (fig. 5). You might need to jiggle the tape a bit to get the teeth to line up, and then the cassette will drop into place. Make sure the loose tape is between the two center guide posts. Now draw the loose tape around the three guide pins on the left (fig. 6). (In addition to the pictures in this manual, you can also see a [video of the process here](#).) Then twist the tape 90 degrees and tuck it under the left horizontal guide pin. It's important that you twist the tape forward so that the front surface of the tape is facing up. If you twist the tape the other way so that the underside of the tape is facing up, you'll end up with very muffled audio (fig. 7). Now the tape should be laying flat so you can draw it across the rail. Then tuck the tape under



Fig. 4, pull some tape from the center opening

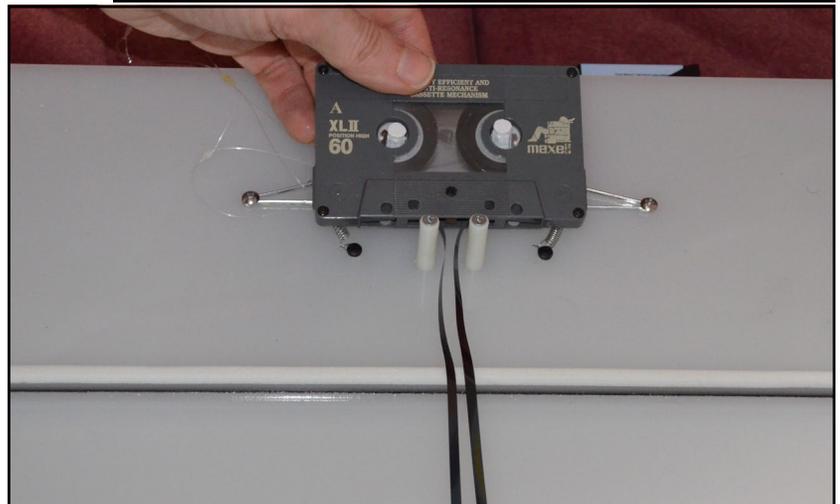
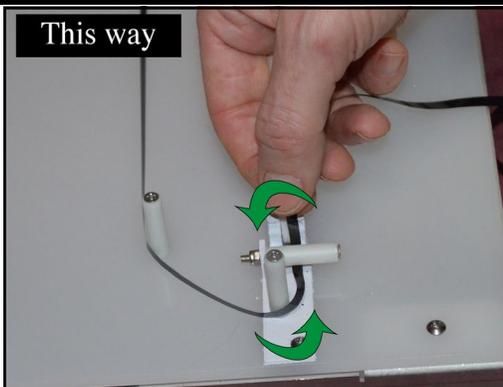


Fig. 5, fit the tape reels into the reel pegs

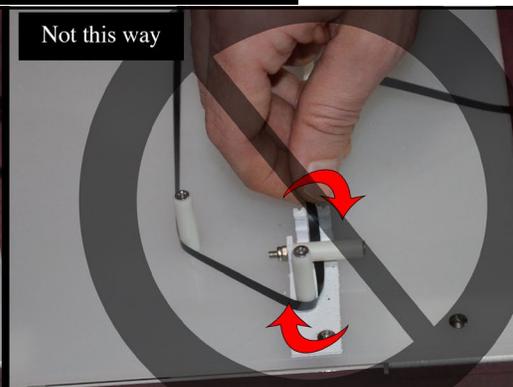


Fig. 6, tightly draw the tape around the guide pins

the other horizontal guide pin, on the right, and draw the remaining loose tape around the right guide posts, just like you did with the left ones. Finally twist the left reel peg clockwise and/or twist the right reel peg counterclockwise (fig. 8) until the tape is drawn tightly across the rail. Your tape is now ready. Check out the "Tape Scratching, Quick Start" section when you're ready to start making some noise.



This way



Not this way

Fig. 7, When tucking the tape under the horizontal guide, be sure to twist it forward



Fig. 8, turn the left peg clockwise and/or turn the right peg counterclockwise until the tape is tight

Removing the Audio Cassette

To remove the cassette, you'll first need to loosen the tape a bit. Pull on one of the fishing lines to release the ratchet on the left or right reel peg, and turn the left peg counterclockwise or the right one clockwise (fig. 9). This should give you enough slack to free the tape from the guides. Once that's done, pull the loose tape straight outwards to ensure there are no folds or tangles (fig. 10) and spool it back into the cassette by twisting the left peg clockwise and/or the right one counterclockwise. As you're spooling, pull the loose tape taut with your other hand so that it remains straight when it's spooled back into the cassette.

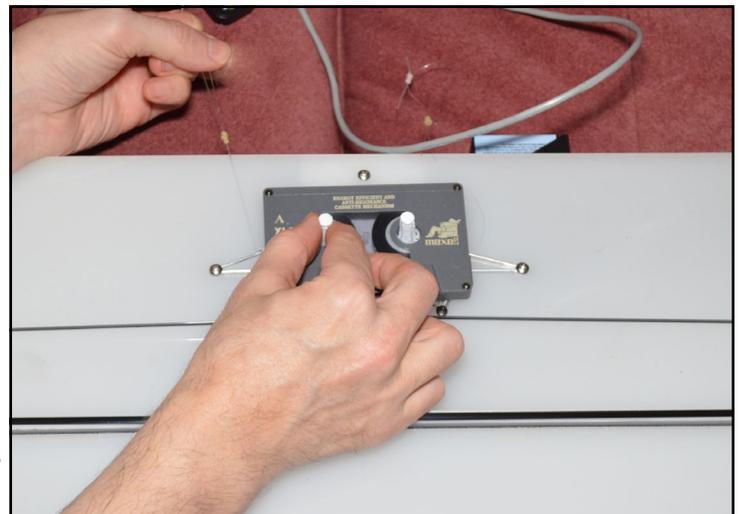


Fig. 9, pull the ratchet release line to loosen the tape

*Fig. 10,
spooling the tape
back into the cassette*



Tape Scratching, Quick Start

Caution: Much like with a guitar amp, you should never have the ScrubBoard's volume cranked up when you're connecting or disconnecting the scrubber cables, because it could generate a loud pop. Protect your ears!

Once you've gotten a cassette in place, grab one of the scrubbers and one of the connectors. Snap the small five-pin end of the connector into the top of the scrubber (fig. 11) and insert the XLR connector labeled "A" into the "A" socket in the board's rear panel (fig. 12). Don't worry about the "B" connector for now. Next, if you haven't already, connect the battery or power supply, and then connect headphones or powered speakers to headphone jack A. Now make sure that the star on the front of the scrubber is facing you, and place the scrubber on the board so that rail fits into the slot on the bottom (fig. 13). Now switch on the power, crank up the volume, and try sliding the scrubber up and down the rail. Have fun!

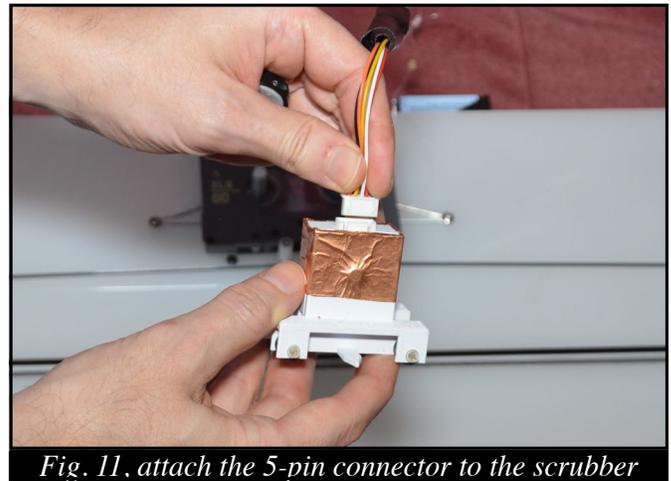


Fig. 11, attach the 5-pin connector to the scrubber



Fig. 12, connect the XLR jack to the board

At this point, you should be hearing whichever side of the tape is facing up. But if you want to hear the other side, there's no need to turn over the tape -- just lift the scrubber up off the rail, turn it around so that the star on the front is facing away from you, put it back down on the rail, and now you can access the other side of the tape. You can also access the other side by connecting the other XLR connector, which is covered in the "Advanced Setups" sections.

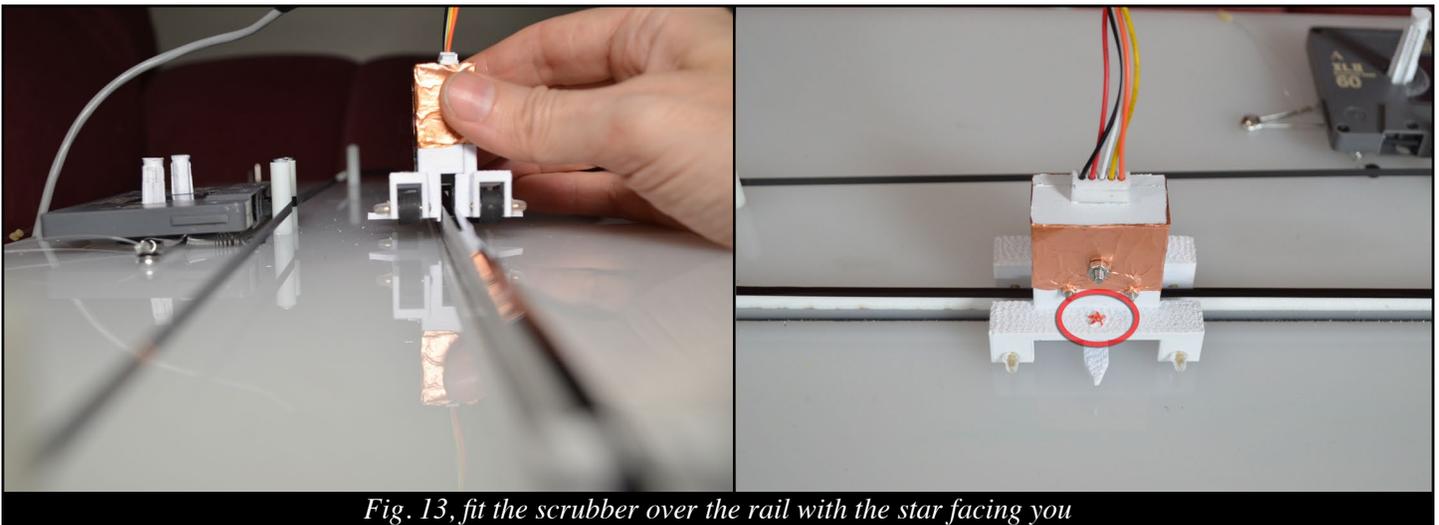


Fig. 13, fit the scrubber over the rail with the star facing you

Creating Visual Markers

One of the advantages of scratching with audio tape is that you can create a separate visual marker for every spot in your playlist that needs marking. Just move the scrubber until you hear a transient in the audio, and then use a dry erase marker to draw a mark on the board that lines up with one of the “pointers” that protrude from either side of the scrubber’s base (fig. 14). Do that for all the important spots in the tape, and you’ll be able to scratch with total precision. The Scrub-Board’s acrylic surface functions like a whiteboard, so when you switch tapes, you can easily erase your old marks.

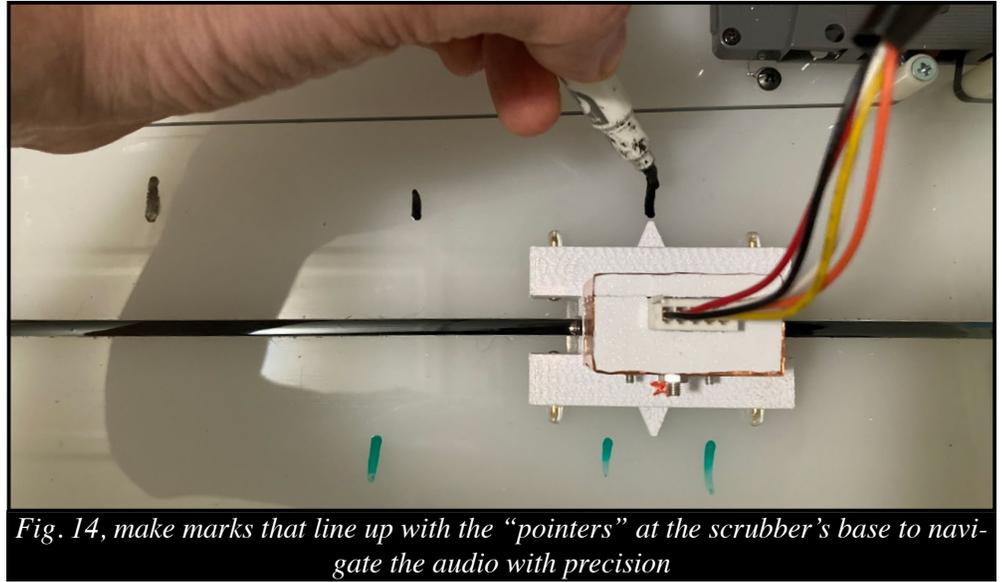


Fig. 14, make marks that line up with the “pointers” at the scrubber’s base to navigate the audio with precision

Changing the Position of the Tape

If you have a cassette placed on the board but you want to access a different spot on the tape, you can roll the tape forward or backwards by short amounts of time without removing it from the board. To move the tape position forward, pull the left fishing line to release the ratchet for that reel peg, and then twist the right peg counterclockwise, which should cause the left one to rotate that way as well (fig. 15). If you find it won’t turn (which is often the case), don’t force it. Just create some slack by turning the left peg counterclockwise

by a few rotations first -- again, while pulling the left release. Then you can let go of the release and take up that slack by turning the right peg in the same direction until it’s tight. If you want to advance the tape by several minutes or more, and you don’t have a tape deck, it is recommended that you spool all the tape back into the cassette before following these steps.

To rewind the tape instead of advancing it, you can follow this same process, but release the right ratchet instead of the left, and turn the pegs clockwise instead of counterclockwise. Also, keep in mind that “forwards” and “backwards” are relative terms, since sides A and B run in opposite directions on standard cassettes. Find more about this in the section “A Word About Technique.”

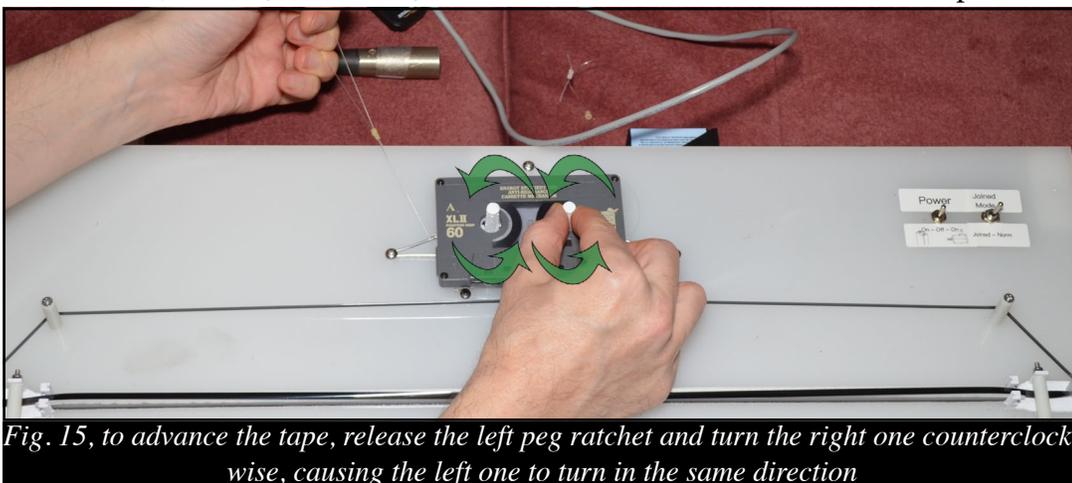


Fig. 15, to advance the tape, release the left peg ratchet and turn the right one counterclockwise, causing the left one to turn in the same direction

Advanced Setups — Scrubber + Crossfader

If you have my special scratch tapes, be sure to grab the one labeled “Scrubber + Crossfader.” And you might want to flip the tape over if you want the audio to run in the opposite direction. Check out the section “About My Curated Scratch Tapes” for more on this.

Use one of the connector cables to connect a scrubber to the board, as in the “Quick Start” section above, but this time, insert both of the XLR connectors to their respective XLR sockets on the rear panel, as shown in fig. 16. Now you are set up so that moving the scrubber will generate audio from both sides A and B simultaneously, from their respective outputs. Connect jack A to the Channel 1 inputs on your crossfader mixer, and jack B to the Channel 2 inputs, or vice versa (fig. 17). To do this you’ll need two TRS to dual RCA ‘Y’ adapters, like the one sold here, or a similar type of connector cable, depending on your crossfader. Place the



Fig. 16, connect the A&B xlr connectors to their corresponding sockets

scrubber on the board so that rail fits into the slot on the bottom (fig. 18). Now you can use one hand to scratch by moving the scrubber, while using your other hand to move the fader back and forth to switch between side A and side B of the tape. You can see a demonstration of this technique in this section of my video, here. You can also do more traditional cutting techniques by turning one of the vertical channel faders all the way down. Then you can use the crossfader to cut it up, just like you would with a vinyl record. Personally, I’ve never been very good at crab-cutting, but for people who are, I think it would be super fun to alternate between using the crossfader for traditional cutting and using it for the A/B side switching described above.

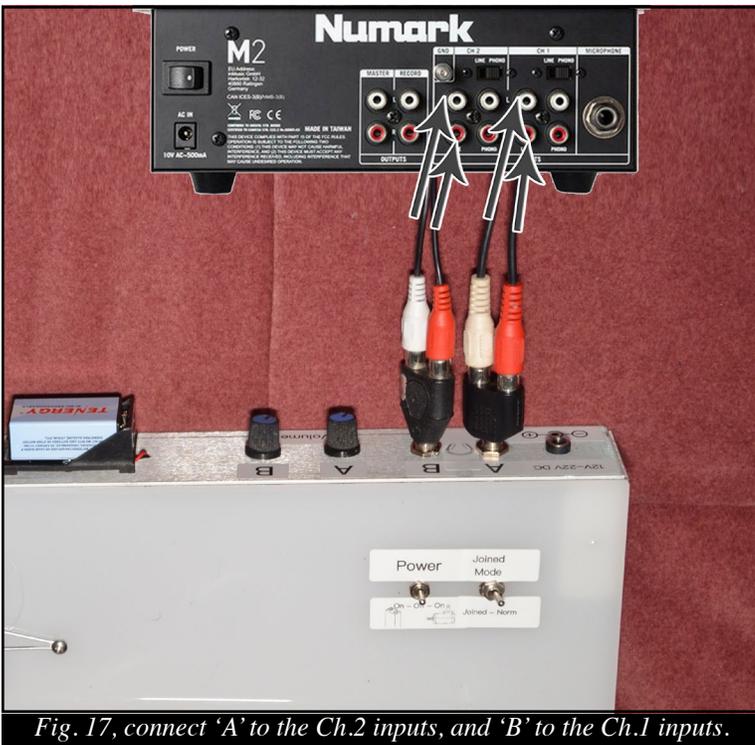


Fig. 17, connect ‘A’ to the Ch.2 inputs, and ‘B’ to the Ch.1 inputs.

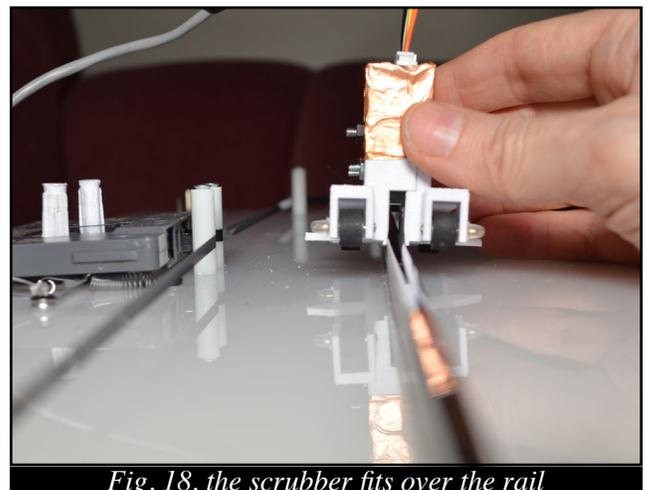


Fig. 18, the scrubber fits over the rail

Advanced Setups — Two Scrubbers at Once

If you have my special scratch tapes, be sure to grab the one labeled “Dual Scrubbers.” And check out the section “About My Curated Scratch Tapes” for info on what makes these tapes different than standard ones. Also, please keep in mind that this technique is only for people who purchased a second scrubber.

[You can see a demonstration of this technique in this section of my video here.](#)

Grab both scrubbers and both connector cables. Snap the small five-pin ends of each connector into the top of each scrubber. On the other end of each connector cable are two XLR connectors labeled “A” and “B.” Grab the “A” connector at the end of one of the cables and connect it to the “A” jack in the back of the board, leaving the “B” connector disconnected. Next, grab the “B” connector at the end of the other cable and connect it to the “B” jack, leaving the “A” connector disconnected (fig. 19). Now you have one scrubber that will read side A of your tape, and one that will read side B. (Just make sure that Side A of the cassette is facing up, and the stars printed on the scrubbers are facing you when you drop them on to the rail, or else the A and B outputs will be reversed.) As with the “Scrubber + Crossfader” technique above, you’ll need to use both outputs for this, and you’ll probably need [‘Y’ adapters like this one](#). You can connect the two outputs to a standard mixer, or you can connect them to a mixer with a crossfader and just leave the crossfader in the center. Of course when you have a scrubber in each hand, you won’t have a free hand to move the faders anyway, but there’s still a lot you can do. See “A Word About Technique” for more on that.

There is a workaround if you don’t have any kind of mixer — it’s the “Joined Mode” switch next to the power switch. When this switch is set to “Joined,” the A and B signals are summed together into one signal, which is accessible via either output. This way, you can try this two-handed scratching technique and hear the outputs of both scrubbers just by connecting a pair of headphones directly into the ScrubBoard, using either headphone jack. Just be aware that this is a “transformerless” connection, which, in this case, just means that

either volume knob will affect both signals, so they’ll both need to be turned up.

Be sure to only enable Joined Mode when using two scrubbers. Using it with a single scrubber will mean you’ll be hearing both sides on top of each other, likely resulting in a noisy mess. And even when you are using two scrubbers, I’d recommend only using it for practicing. For performing or recording, it’s much better to use a proper mixer to join the two signals.

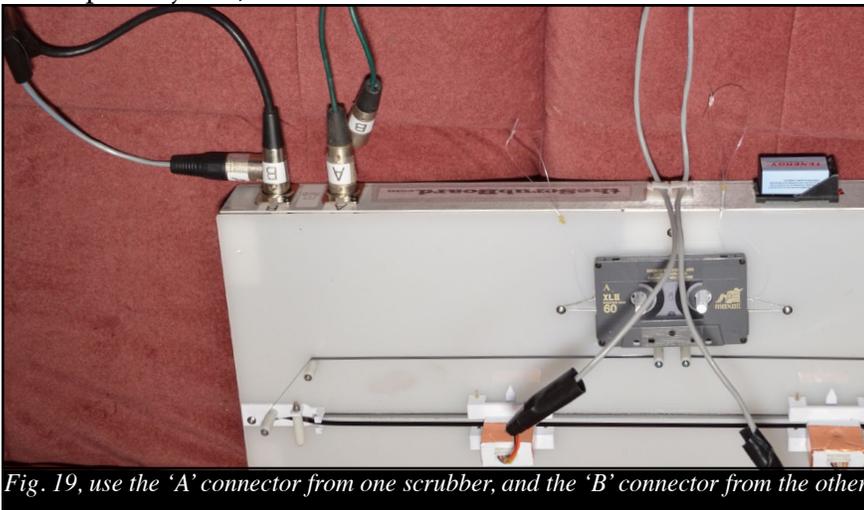


Fig. 19, use the ‘A’ connector from one scrubber, and the ‘B’ connector from the other

A Word About Technique

I fully expect that once enough people get their hands on their own ScrubBoards, people will come up with all kinds of cool techniques that I had never dreamed of. After all, just because I invented the ScrubBoard doesn’t necessarily mean that I’m qualified to tell people how to play it! But still, there are a few basic principles I wanted to cover, and then after that, you’re on your own to create your own unique style.

So here goes: If you’ve ever done any vinyl scratching,

you know that even if you’re not doing a lot of that fast rhythmic cutting that the scratch virtuosos are known for, you still frequently need to use the fader just to mute all the inevitable unwanted sounds. For example, if you want to play the same sound forward twice in a row, you can’t do it without backing up the record in between, and that will generate sound that you don’t necessarily want, so you have to use your other hand to cut it. But on the ScrubBoard, that kind of cutting can be done with the same hand that you’re

using to scratch, by just slightly lifting the scrubber up off the board. I demonstrated this technique in my debut video of my first prototype, here. Just make sure to only lift it just enough so that it doesn't generate sound. If you lift it up too high, you might find that when you bring it back down, the slot in the scrubber is no longer lined up with the rail. I'd recommend that when you start working on your ScrubBoard technique, this is the first thing to focus on: Slide the scrubber along the rail to generate some sound, slightly lift the scrubber so you can move to a different spot on the tape without generating sound, and then bring it back down and do it again.

The other thing I wanted to mention is about the direction that the audio moves. As I mentioned before, on a standard audio tape, if Side A is facing up, the music on Side A will go from right to left, and the music on Side B will go from left to right. And if you flip the tape over, this is reversed. Since I started developing my ScrubBoard prototypes, something I've noticed is that the direction of the audio seems to affect which hand you'll want to use. So for example, if you want to use your right hand, you'll probably want the audio to go from left to right, and if you're using your left hand, you'll want it to go from right to left. It just feels more natural that way. Maybe it's

just me, but I suspect this is universal. (Think about it -- if most people were left-handed, we'd probably all write text from right to left, and then it would be the righties who had to get ink all over their hands... but I digress.) And since Side A and Side B run in opposite directions, and since the ScrubBoard can simultaneously read both sides of the tape, this works perfectly with the "Using Two Scrubbers at Once" technique I mentioned above. Just use your left hand for side A and your right hand for side B, and I think you'll find this to feel very intuitive. Just remember that, whichever hand you're using, the audio should be forwards when you're moving the scrubber away from your body, and it should be backwards when you're moving it towards your body. If it's the other way around, just switch scrubbers.

Of course the problem is — what about the other advanced technique I mentioned, "Scrubber + Crossfader"? With this one, you're using the same hand for both sides of the tape, so whichever hand you're using to scratch, one side will feel natural and the other will feel awkward. Ideally, you'll want to learn to get used to scratching in either direction with your dominant hand (which is something I'm still working on), but there is an alternative, which brings us to the next section...

About My Curated Scratch Tapes

My curated scratch tapes come in two flavors: the "Dual Scrubbers" tape and the "Scrubber + Crossfader" tape. There's an important difference between them, but before we get to that, there are two things they have in common:

- They are both recorded at a higher speed than regular tapes. This improves the sound quality, but more importantly, it means that the sounds are more spread out, allowing for more natural-feeling scratch gestures. In a standard audio tape, one second of sound would take up a little less than two inches of tape. Imagine fitting the classic "Ahh" scratch sample (which is about a second long) into less than two inches! This would be quite a shock if you were used to scratching with vinyl records. On my tapes, this is doubled, so that "Ahh" sample would be almost four inches.
- Because the ScrubBoard can access both sides of the tape at the same time, I made sure that on my scratch tapes, every sample on Side A lines up with a sample on Side B. This means you'll have a much easier time finding your way around and you won't have to draw a separate set of marks for each side. (Incidentally, if you do want to scratch both sides of a standard cassette tape, I recommend using a different color for each side, or making one set of marks above the rail, and another set below it).

The difference between the two tapes is that the "Scrubber + Crossfader" tape has two playlists that run in the same direction (fig. 20), whereas the "Dual Scrubbers" tape has two playlists that run in opposite directions (fig. 21). To be clear, you can use either tape for either technique; the labeling on the tapes is just based on what feels comfortable for me, and I find that I want the audio to run left to right when I use my right hand, and right to left for my left hand. Keep in mind that you might need to flip the "Scrubber + Cross-

fader” tape over depending on which hand you’re using on the crossfader, and which one you’re using for scratching. (Flipping the “Dual Scrubbers” tape won’t make much of a difference — you’ll still have one side running in one direction and one side running in the other.) Experiment to find what works best for you, and have fun!



*Fig. 20,
In the “Scrub-
ber+Crossfader”
tape, the two sides
are aligned and
run in the same
direction*



*Fig. 21,
In the “Dual
Scrubbers” tape,
the two sides are
aligned and run in
opposite directions*



*Fig. 22,
In standard cas-
sette tapes, the
two sides are not
aligned and run in
opposite directions*