



*A beginner's guide
to maintenance
and preservation*

Intro

To every big company that used to create portable cassette players and decks, the compact cassette format is dead.

Whilst there has been an effort by some smaller companies like WeAreRewind to bring some newer machines to market the sad truth is these don't hold a candle to even the budget options available in the 80's and 90's.

The number of these older machines in good working order is only going to decrease over time and for the majority of us, there isn't anywhere you can take your device to get it repaired by a professional.

This might all be a bit doom and gloom, but here's the good news; if you own a cassette player, you have something very special. You own a relic of a bygone era of audio and you can keep it alive for decades to come!

This zine will teach you everything you need to know to care for your tape player and become a self reliant cassette aficionado.

Let's get started!

What this zine will cover

What are the components of a tape mechanism?

How to maintain your tape player by cleaning the key components

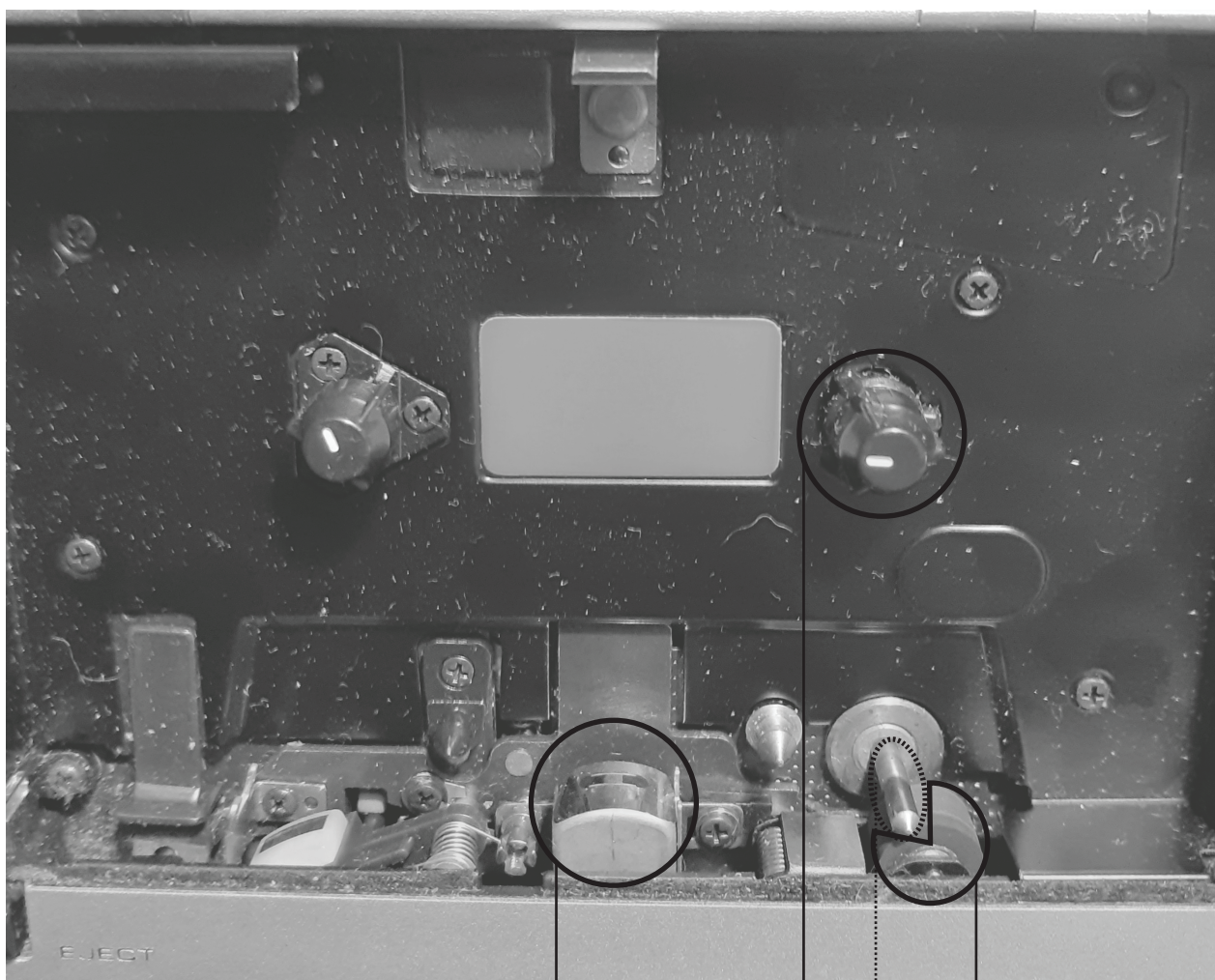
How to fix a walkman with crackly volume control

How to fix issues with inconsistent playback speed

The anatomy of a tape mechanism

Whilst every walkman/tape deck is different and beautiful in its own way they will all feature the same basic mechanism comprising a few key elements.

Hopefully your tape player won't be as dusty as this one



Magnetic
tape head

Pinch roller

Capstan

Take up
reel

Magnetic tape head

- * This component is responsible for reading the information on the cassette and delivery of the incoming signal to the rest of your machine.
- * Some people call it the read head.
- * For maintenance purposes, you can think of it a little bit like the glass in a photo frame.
No matter how good the photograph behind it might be, if the glass is dusty, the image won't be clearly visible.
- * When tape passes over the head a small amount of it will be left behind, a bit like a rubber tyre on a road.
Removing this residue after playback will ensure your tapes will sound as clear as they can.

Capstan / pinch roller

- * These roll against each other to pull the tape in the cassette through at a constant speed.
- * Like the magnetic head, these components will get a build up of tape residue which will eventually impact on their ability to apply suitable friction to the tape.
- * If you've ever had a cassette be "eaten" by a player, it will probably be these components malfunctioning which will be to blame or perhaps their cousin, the take up reel
- * Your player might have an extra set of these for reverse playback on the other side of the head

Take up reel

- * As the capstan and pinch roller pull the tape through, this reel will move it onto a spool within the cassette.
- * If the take up reel doesn't spin the tape pulled through will have nowhere to go and will eventually spill out into the machine.

Rubber belts (not pictured in diagram)

The rotating parts of your machine will be driven by a motor and (unless you have a particularly fancy DD Walkman) a rubber belt, which brings us to my first piece of advice;

***If you're not using your tape player,
DO NOT
PUT IT IN THE LOFT!***

The primary reason for old cassette players failing is deterioration of this rubber belt.

Most lofts in Britain get very cold in the winter and very hot in the summer. Rubber does not fare well with fluctuations in temperature. It's not uncommon to look inside a tape deck that's spent years in a poorly insulated loft and finding horrible sticky black gunk where rubber used to be

For the same reason, leaving your tape deck in direct sunlight probably won't do it a world of good over time.

Cleaning the important bits, how and when

As I mentioned previously, playing tapes will result in a bit of residue being left on the head, pinch roller and capstan components. A small amount of this isn't a problem, but a lot of it very much is. My rule is, if you can see it, it's time to clean it.

In brief, the benefit of cleaning the head is your tapes will sound better and cleaning the pinch roller / capstans will help to prevent your tapes getting eaten up due to poor friction.

I'd recommend taking the effort to look at these components for every few hours of use.

If you're like me and dub a lot of cassettes you'll want to keep a very close on the head in particular before and after dubbing each tape to ensure you get the best possible quality for your recording.

If you're a fan of collecting older tapes from charity shops and the like I'd advise keep a close eye on your core components before and after playing particularly old tapes. Time may not have been very kind to these tapes and they'll be more likely to leave behind a lot of residue when played.

You will need;

1. Cotton buds
2. Isopropyl alcohol (methylated spirit will also do if you can't get hold of IPA)
3. A torch to help you get a good look at these components.



A quick warning before we begin

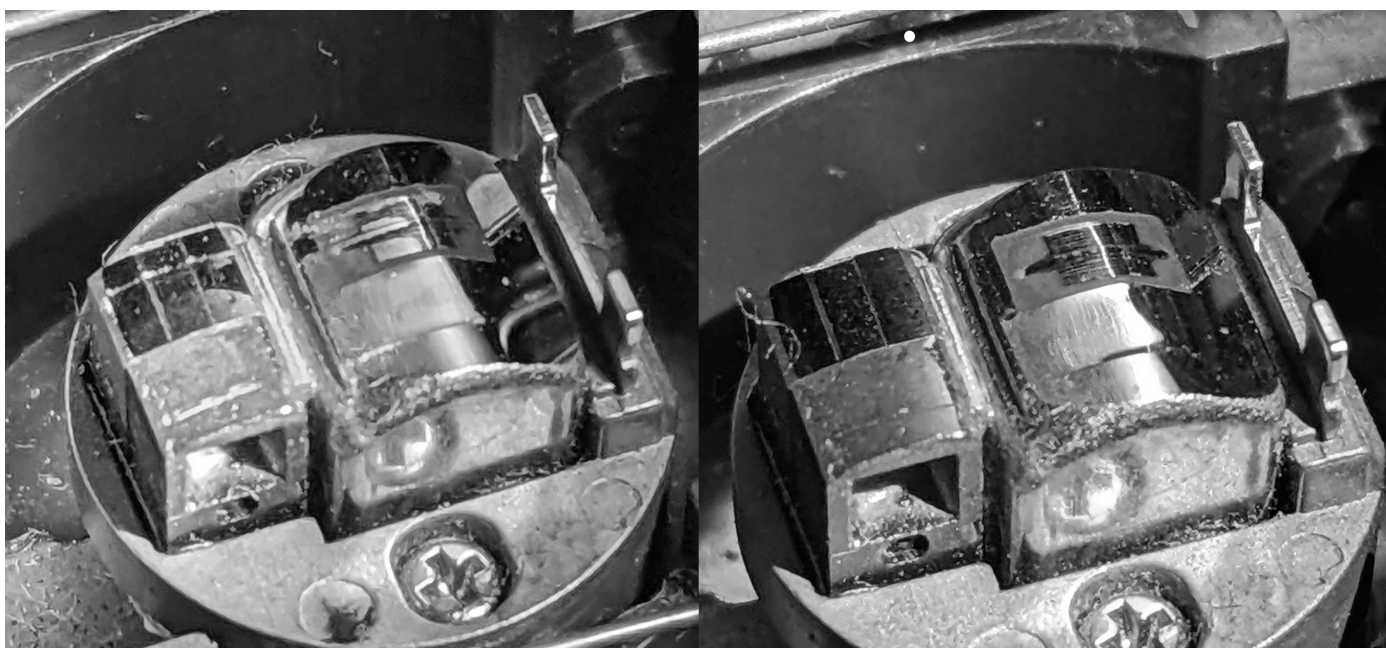
We're going to be cleaning some moving parts designed to apply friction to the tape with a liquid.

Don't do what I've done plenty of times and try playing a tape straight after cleaning these bits, your tape will get all chewed up. It sounds obvious but it's a very easy mistake to make. Leave it 2-3 minutes after cleaning before trying to use your device.

Cleaning the tape head

Apply some of your cleaning agent to your cotton bud and use this to wipe away any residue from the tape head in the same way we did for the capstan and pinch rollers.

If your head hasn't been cleaned before you might need to apply a bit of force to get that gunk off. Your tape head should look nice and shiny when you're done.



This is the quickest and easiest ways to improve the quality of sound coming from your tape machine, I highly recommend keeping a cotton bud next to a tape deck for a quick clean between cassettes.

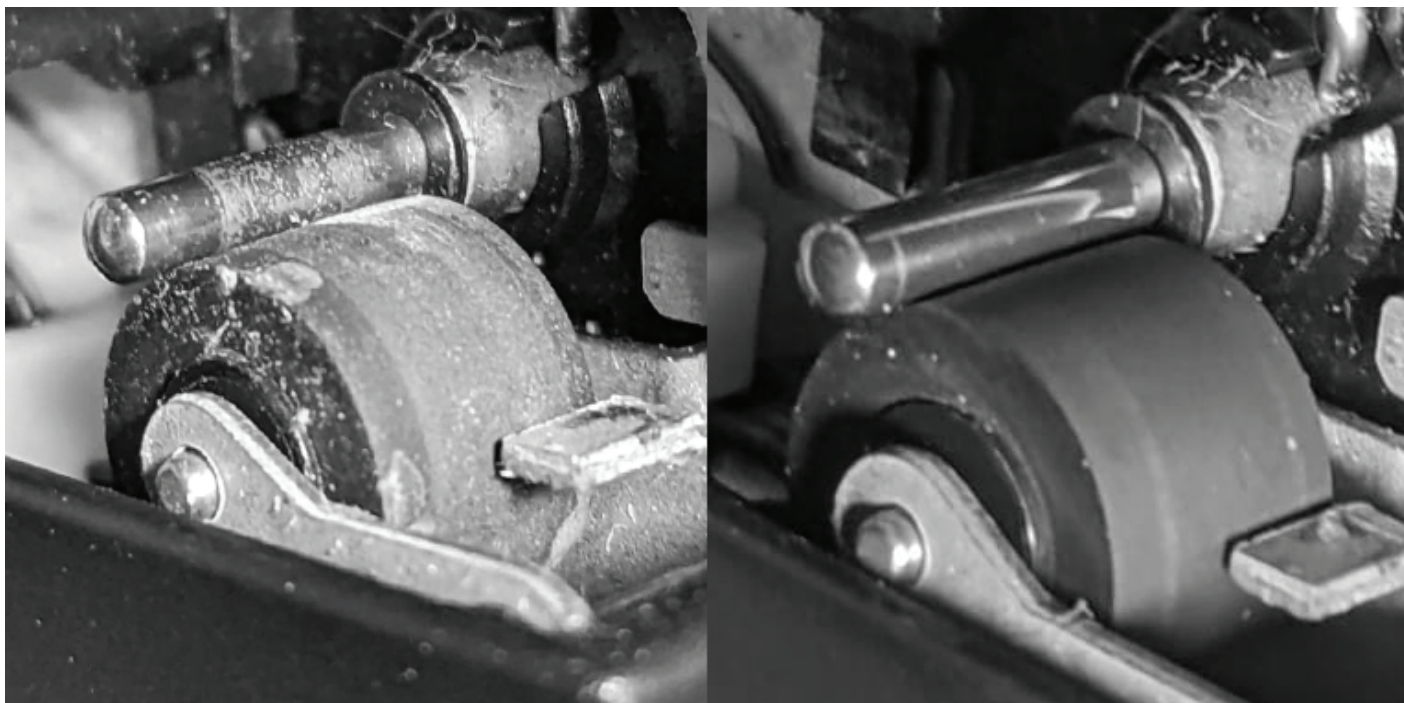
The image above on the left was the result of playing a single type 1 ferris oxide tape for 25 mintues. It's simple enough to fix but can build up very quickly if left unattended!

You might find yourself going through a few cotton buds for a particularly old or mucky machine, just keep going until you stop seeing orange stuff come up on your cotton buds (remember to keep applying IPA to new buds, a dry cotton bud won't do diddly squat).

If you find yourself with a pile of dirty orange cotton buds after this process then congratulations! You've just seriously un-fucked your player. You won't need to do that as much to that device potentially ever again.

Remember to wait a few minutes before trying to play a tape, wet bits bad for tape.

Here's some nice before and after pictures of me cleaning the capstan and pinch roller for a Walkman I bought on eBay.

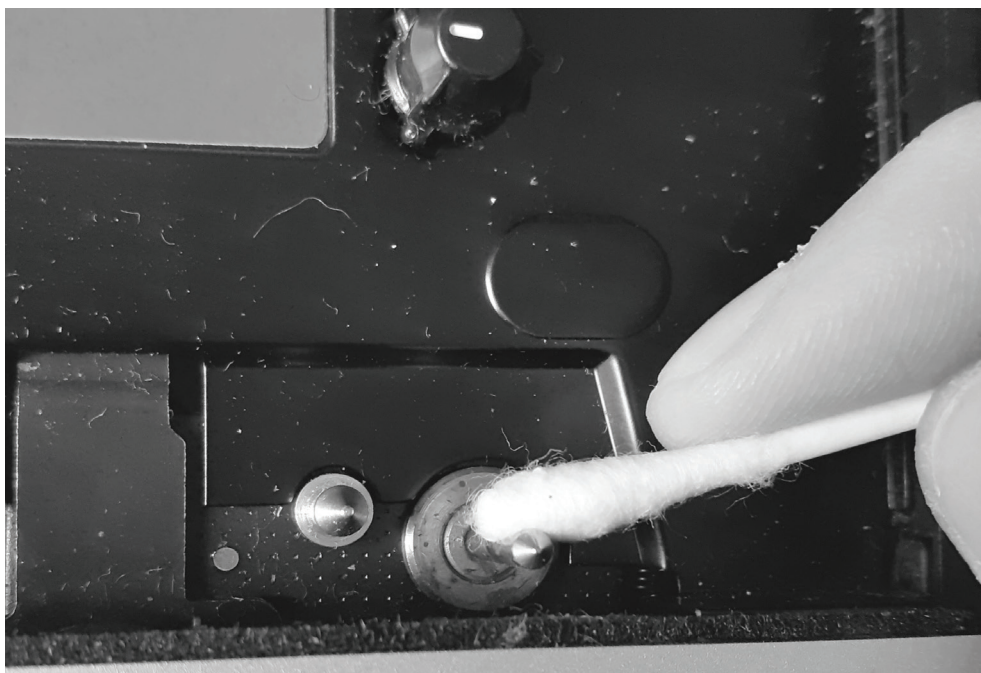


Cleaning the capstan(s)

Now when it comes to cleaning your capstan and pinch roller you might be able to make life a bit easier for yourself.

If you've got a portable cassette player you can probably use the fast forward without having a cassette inserted to make the capstan spin nice and fast. This makes rubbing off any residue much easier than if it were stationary.

If you're cleaning a cassette deck you might not have this luxury, in which case just clean what you can, get the capstan moving by playing a tape a bit (just 1 second will be enough, the capstan doesn't rotate very fast during regular playback) and repeat until the metal is lovely and clean.

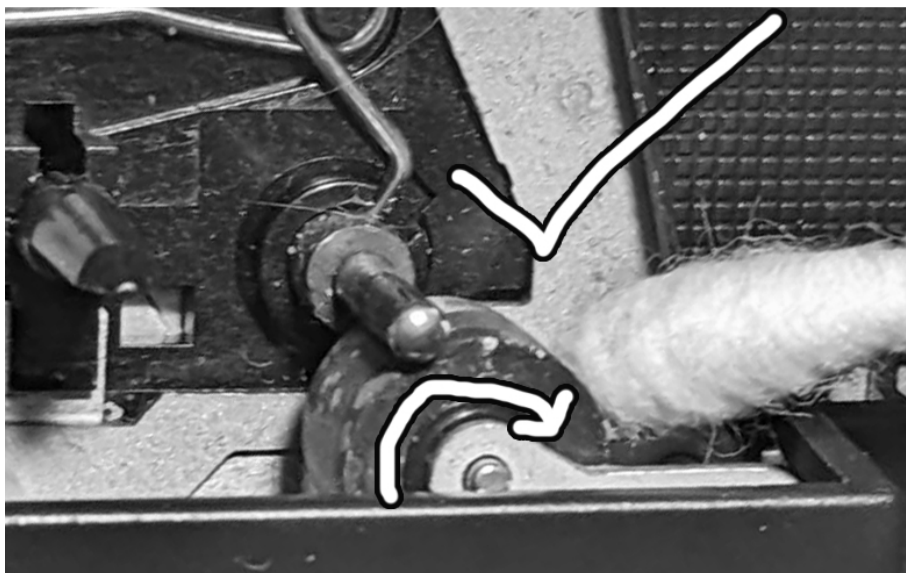
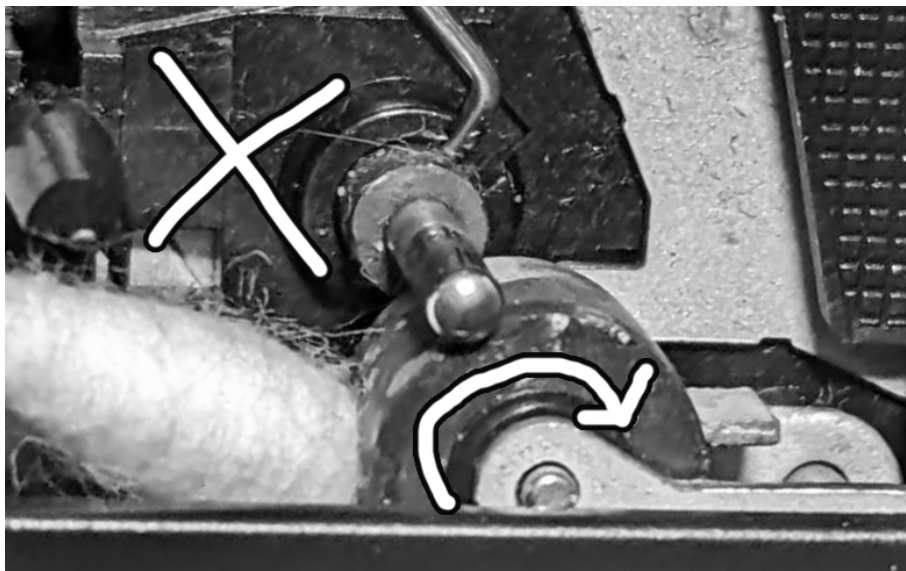


Watch out for the strands of cotton getting wound around the capstan, it'll be easy to remove with a set of tweezers but you won't want to leave that stuff in there.

Cleaning the pinch roller(s)

Pinch rollers are made from rubber which can be damaged by ethanol. If you're using isopropyl alcohol then lucky you, no worries. Methylated spirit on the other hand will cause some deterioration to this component with extended use due to its ethanol content. Not a terrible amount, but just something to be aware of, don't over do it.

If you can engage the play function of your device this will make cleaning the pinch rollers much easier. Just be careful not to stick the cotton bud before the capstan where it might be chewed up.



Fixing crackly/faulty volume control

I've had a bunch of portable tape players where the volume control makes nasty crackling noises when used or does something awkward like only play audio out of both channels at very particular positions.

Both these issues have the same cause and solution. There's something getting in the way of the volume potentiometer where there shouldn't be (probably some dust or floating pocket fluff). Easiest way to fix it is to blast out the debris and clean the electrical component using the WD-40 brand Contact Cleaner, not the water based lubricant, DO NOT start blasting that shit into your walkman!

If you've not used this stuff before, it's a cheap bottle of magic which has a bunch of uses for electronic gadgets which after using you'll soon wonder how you ever lived without it.



Point the nozzle in a gap in the plastic, give it a little squirt and move your volume control all about to really get that stuff in there. It's a non-conductive cleaner which means you can have your tape player running during this process and listen for the reduction in noise.



Sometimes you need a second or third squirt with some extra wiggling. If it's still not co-operating after a third squirt and wiggle (ooh matron) there might be a more spooky problem afoot.

This contact cleaner can always be used to clean battery terminals that have become corroded. A wire brush and a few squirts of the good stuff and you'll be able to bring some gadgets back from the dead!

Fixing inconsistent playback speed

There could be a few reasons for inconsistent playback. If you're using a portable tape player the first thing to do will be to check the batteries. As they start to run low on juice they'll make the motor run slower and provide a lower pitched audio as a result.

It's also worth testing any issues with playback with multiple tapes. It's not uncommon for an old cassette to become warped from years of idleness and sound very wonky when played back. Other tapes might have some internal mechanical issues where the spools are difficult to rotate. Point being, don't begin by assuming your tape player is at fault.

From this point forward we'll be venturing slightly away from general solutions where I can point to images to help you along. All the tape players are beautiful and different in their own way and getting access to the bits I'm about to talk about will be different for each one.

Google is your friend.

Service manuals are easy to access for a lot of portable tape players for free from community run websites.

Similarly I'd recommend trying to locate a video for tasks like belt replacement. The chances of finding a video about your exact model are very low but it's all very similarly designed tech with a lot of parallels between brands.

Wobbly sound, replacing belts

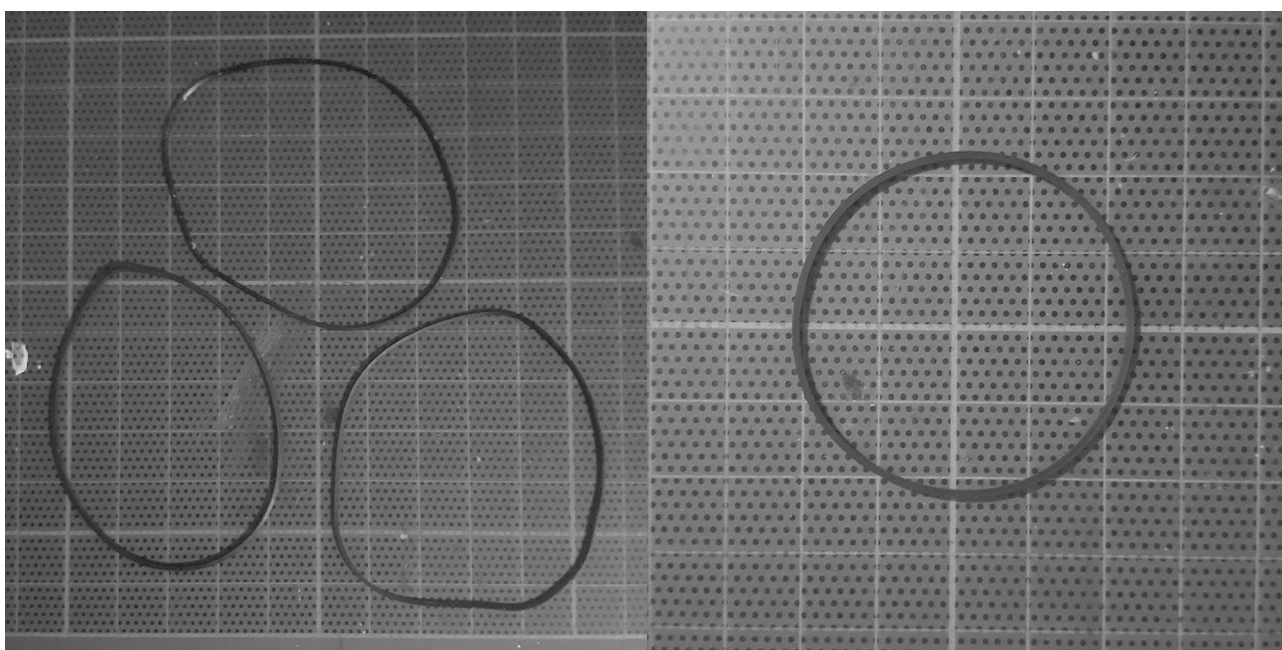
If you're getting wobbly or warbly audio from your tape player it probably means you've got a misshapen rubber belt connected to your motor.

Sometimes this effect can be quite subtle, a good test for whether or not your tape player needs a new belt is to listen to a familiar piece of music with long isolated piano notes or constant tones. If something should be a constant but sounds like it's wobbling all around, it's time to look at your belt.

You'll need to look up a service manual online or locate suitable disassembly instructions for your device in order to gain access to the belt in order to replace it.

I recommend buying a nice big bag of rubber belts on eBay with a range of sizes. You can purchase "specialist replacement belt kits" but this is an easily avoidable expense. All these kits are the same belts you'd get in a cheaper multipack but with the other sizes thrown away.

If your belt looks anything like the belts on the left, replace with one that looks like the one on the right



Adjusting playback speed

If your playback is just much slower or faster than it should be then you're in luck, this is another very easy to solve issue. Almost every portable player will have some form of speed adjustment method somewhere, exactly where will differ by make and model and sometimes you might need to get busy with a screwdriver to get access to this component. Google is your friend. A lot of models have easy to locate service manuals online for free, particularly the Sony Walkman family of players since they were by far the most popular.

If you're coming up short, look for a small (1-2mm) hole on the back of your tape player.



The speed adjustment potentiometer will allow you finely tune the resistance going to the motor driving the movement of the tape inside the cassette. Typically it'll have a range of $\pm 5\%$. If it's still too slow, lubricating the motor might be a good idea.

Closing remarks

If you've made it this far I'd like to thank you for taking the time to read this zine and taking the effort to try and maintain a bit of technology from our past which many others before you have simply thrown away.

This has by no means been a comprehensive guide to fixing everything that can ever possibly go wrong with a tape player, but I hope I've imparted enough advice to make the whole process a bit more transparent.

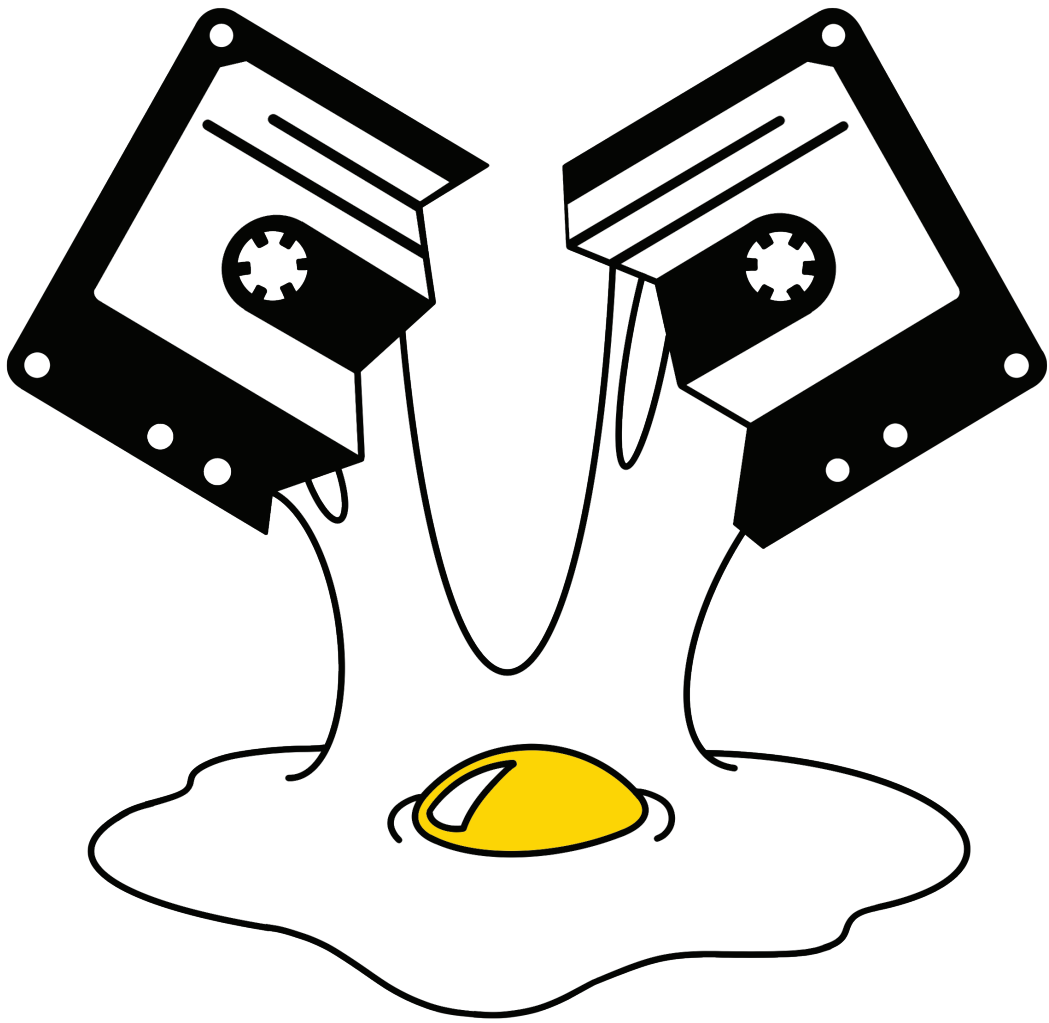
If you have any questions about anything you've read or suggestions on how this zine can be improved for later editions, please do not hesitate to contact me.

I can be reached via instagram [@eggy.tapes](#) and by email at eggy.tapes@gmail.com

A digital version of this zine will also be made available on my personal website at craigtinney.co.uk/zines

Thank you for reading, long live tapes!

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