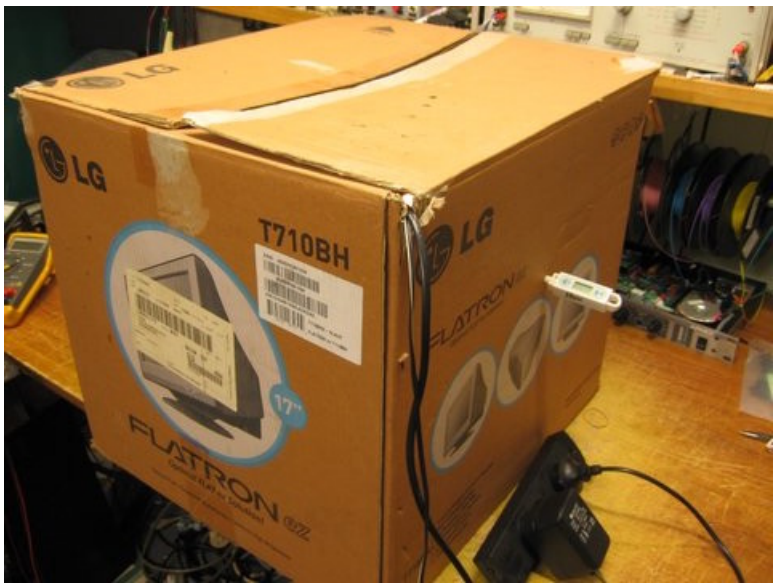
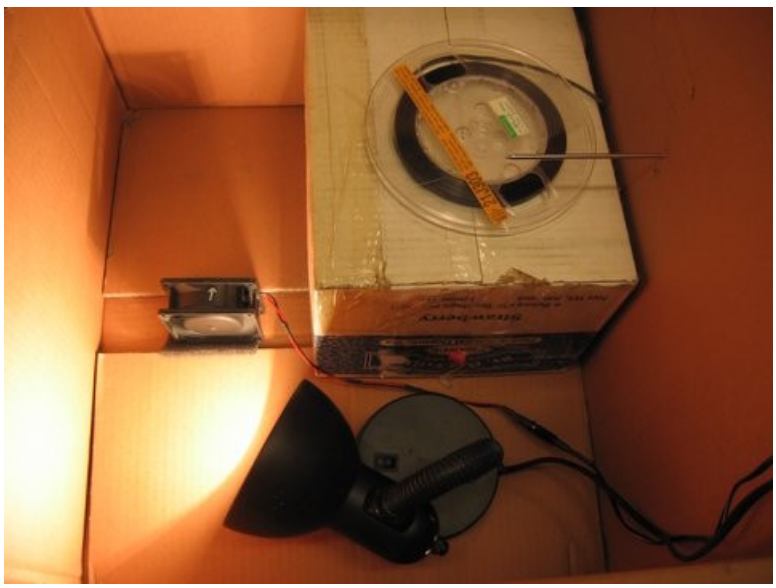
How to Bake a Tape

Anyone who uses ¼” or larger analogue audio tape has at some stage experienced the problem of older tapes **binding** and needing to be baked. The problem is essentially caused by the tape slurping up moisture from the atmosphere, it becomes gummy and sticks to the heads and fixed guides of the tape transport, squealing, jerking, and sometimes slowing down or stopping the tape transport. Tape binding can nearly always be cured by baking the tape. The cure is only temporary (it normally lasts a month or two) but the baking process can be carried out repeatedly without damage to the tape or affecting the audio quality.



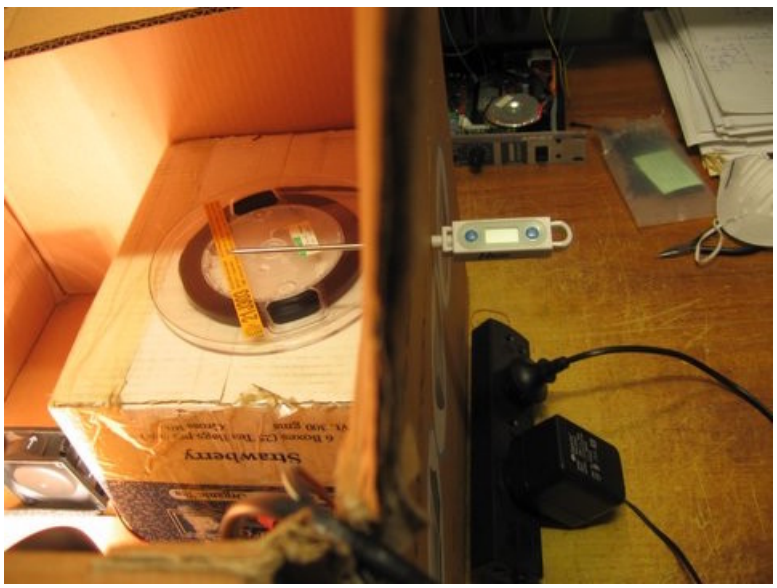
The photo above shows the **tape bake box** concept. I used the old cardboard box that my last VGA computer monitor came in, it is a perfect size.



Above shows the inside of the **tape bake box**. The lamp is a standard bedlamp fitted with a 100 watt bulb. A 12 volt 80mm fan (in this case a Papst model 8312) is sitting on a section of foam (to absorb vibration) and is blowing air away from the lamp and

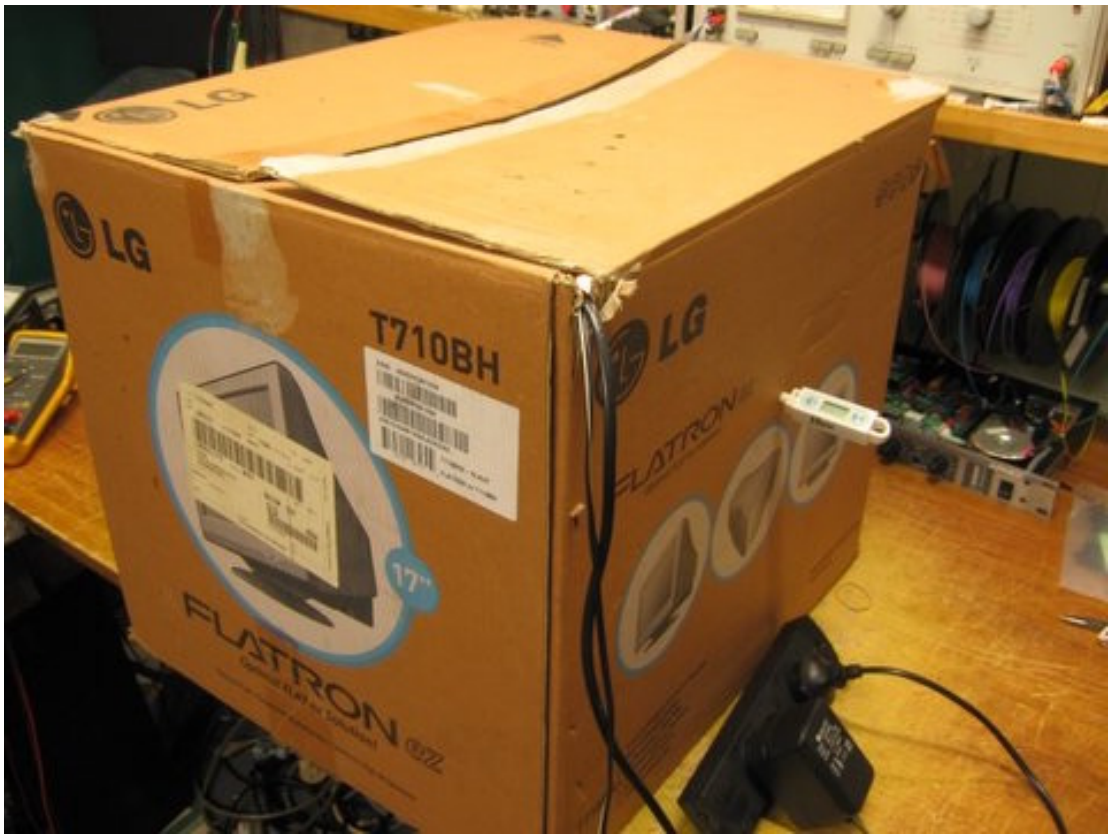
circulating it around the box. The tape to be baked is sitting on a smaller internal box (which acts as a pedestal) to keep it well away from the direct heat source. A digital thermometer has been poked through the side of the main box and is able to sense the air temperature slightly above the tape being baked. This **tape bake box** is able to handle any size audio tape, I routinely bake my alignment tapes which run from ¼" on 7" reels all the way through to 2" on 10.5" reels.

The above is a close up showing the thermometer probe just above the tape.



Another shot showing the digital thermometer. You can also see the variable voltage DC plug pack power supply that powers the fan. I tend to run the fan at one stop below the usual 12 volt setting.

Baking time varies with the tape. In general you can not overbake as long as the temperature is not too high. The ideal temperature is 130 degrees F (54 degrees C) plus or minus 10 degrees F (plus or minus 6 degrees C)



The box “as is” has a little trouble getting to 130 degrees F on a cold day. I experimented with taping up the air holes with gaffa tape etc but found that the best approach was to simply place a folded beach towel over the top of the box. The idea is to drive the moisture out of the tape, therefore there is no point sealing the box as you will trap the moisture, a beach towel helps the box to reach its desired temperature and still allows the moisture to escape.

A guide to temperature and tape baking times

The ideal temperature is 130 degrees F (54 degrees C) plus or minus 10 degrees F (plus or minus 6 degrees C).

¼” tape : approx 4 hours
½” tape : approx 5 hours
1” tape : approx 6 hours
2” tape : approx 8 hours

Allow an extra hour or two for the air in the box to come up to temperature. Always leave the tape undisturbed in the baking box to cool off for about the same amount of time as it took to bake it.

If the tape is still binding simply bake it again or bake it for longer. As stated, you can not overbake if you observe the correct baking temperatures. Do not be tempted to use a household oven to bake a tape, they can not be set low enough.

Regards, Warren Huck, Hux Electronics
www.hux.com.au