**Release: Tape Interface**

This is the bit that is probably completely wrong. I think the idea behind it is plausible, but the execution isn’t quite right. I never was much of a one for analogue electronics, to be honest. Still aren’t.

The purpose is to convert a digital signal to a tape recordable one and back again.

This is how it is supposed to work.

**Output side**

U1 is a 555 configured to run as an astable multivibrator at about 1.5khz. The output is gated via D1 and D2 which form a diode AND gate – if SOUT is high the signal is output to the tape, if not, it isn’t. I suspect this signal needs rounding a bit to work.

**Input side**

R1/C1 form a 2.8khz Low band pass filter. Signals that get past this turn on Q1, triggering the 555 which is configured to run as a monostable multivibrator with a period of about 1khz. A 1.5khz signal should retrigger this before its period ends, providing a constant logic ‘1’ output when there is a signal coming in from the tape.

**Notes**

When I figured it out this design after god knows how many years, my first thought was, does a 555 retrigger like that ? The problem is, no it doesn’t, because it doesn’t discharge the timing capacitor (C5). So the circuit won’t work as it’s supposed to. It is fixable in various ways, apparently, including simply replacing the 555 with a 74123, and wiring a PNP transistor across the timing capacitor to discharge it rapidly.

The circuit is probably going to operate at about maybe 150 baud maximum – this is pretty slow, but then again, with 128 bytes of RAM, it matters less. I think my out frequency of 555 is rather low, but I suppose having an audible frequency makes sure it is in the recording range of a tape cassette. I was looking at some other circuits which were using 3khz waveforms, so I suppose this must be do-able with a bog standard recording tape.

Still not sure if it would work in practice with the adjustment made to the monostable circuit. Probably not, because the on cycle time of the square wave is half the frequency, so I probably need to bump that oscillator (U1) up to 2.3khz or thereabouts. Replace C4 with a 22nf capacitor But it’s not bad, and the output needs to be smoothed to something more akin to an audio signal rather than a direct square wave.