DX Time Machine

Craig Healy

Did you ever wish that you could have perfect DX conditions year-'round and 24 hours a day ? Did you ever get distracted, miss an ID, and wish that you could do it over again ? Here is a way to record the AM band to get all that and more.

Parts needed:

1 VHS video recorder (unmodified)
1 Adapter box: Antenna to VCR (Figure 1)
1 Adapter box: VCR to receiver (Figure 2)

The History

Let me backtrack a bit, back to "**DX News**" April Fools issue in 1983. On page 17 is a short article "**The Monday Morning Tape Recorder**", presented as a humor piece. I tried it. It didn't work ... at all. The one missing bit of information was how to get the VCR to lock up to a stable speed. Without that stability, it is impossible to tune in stations. They move around the dial at incredible speed, never staying in any one spot.

The Cure

It was as simple as adding a 60 Hz 0.5 volt (rms) signal in with the RF spectrum. The VCR locked to it and everything was OK ... almost.

The Limitations

The VCR and tape have limited dynamic range. Put in too much signal and it overloads like a cheap receiver. Put in too little and the DX gets lost in the internally-generated noise. Mine works fine with a signal of about 10 mV/m or about S-10 on my Drake R7A / longwire combo.

The Means

Figure 1 shows the Antenna to VCR adapter schematic.

Note 1: The MHW-591 is an expensive part, about $80 at last check. It is very good and is highly recommended if you can afford it. It is entirely probable that one of Mark Connelly's creations would do as well. MHW-591 spec's: 36.5 dB gain from 0.5 to 150 MHz, usable to 0.2 MHz. It will put out around a half a watt relatively cleanly. The noise figure is about 3.7 dB and is more than adequate. Good construction practices are a must or the module will self-oscillate.

Note 2: The 1 mH RF choke and the .05 microfarad capacitor keep the 60 Hz and the RF where they belong. The 270 ohm resistor and the AUX output are designed to work with my regenerative tuner. It will also work with the Connelly MWT-3 and Mini-MWT-3 regenerative tuners (shown in the NRC reprints on **MWT-3** and **DL-1**). The resistor and AUX output may be deleted if you don't need them. None of the parts values is critical.

The purpose of this adapter is to amplify RF and to add the 60 Hz sync. signal for video input to the VCR.

The VCR to receiver adapter is shown in Figure 2. It is nothing more than a very simple high-pass filter (the capacitor) and a 30 dB pad (approximately) to prevent receiver overload. Its purpose is to lower levels to what a receiver can handle and blocks the 60 Hz sync. signal.

Use

As a compromise between strong signals and weak DX, I limit myself to only a portion of the AM band. I have no strong locals above 920 at night so most of my DX is there. I can record from 1070 to 1600 kHz with usable, DXable signals. You will have to tailor the signal levels and bandwidth to your location.

Thoughts

Most VCR's have a built-in timer for automatically recording. Very handy. The fast forward gets you from ID to ID quickly.

If you go on vacation or a DXpedition then bring the VCR, record the band and DX later at home.

Swap tapes with friends, particularly ones in more exotic locations.

For a DX test, one VCR at a remote location and one at home doubles your chances.

Buy a whole bunch of tapes and record the whole month of December for later dissection.

Tune your radio to WWV and put the audio input of the VCR for a perfect time reference.

OK, the purists will agonize over all this for months, but I don't care. This is my way of getting an advantage over the no-silent-period stations and generally lousy conditions.

I cannot possibly try all VCR's on the market, so send in your results. Not all VCR's, or tapes for that matter, are created equal.

I have specified VHS. The Beta format (or 8 mm format) may be as good, better, or

worse. I simply have not tried it.

I did play a tape on two other machines and it worked fine. It should be no trouble to swap tapes. I will record tapes for your own tryout. This only requires that you build the simple VCR / Receiver box. Send me a VHS tape and postage.

Your input is important. Please send your results.

Craig Healy - 214 Central Avenue - Seekonk, MA 02771

FIGURE 1: ANTENNA TO VCR ADAPTER SCHEMATIC

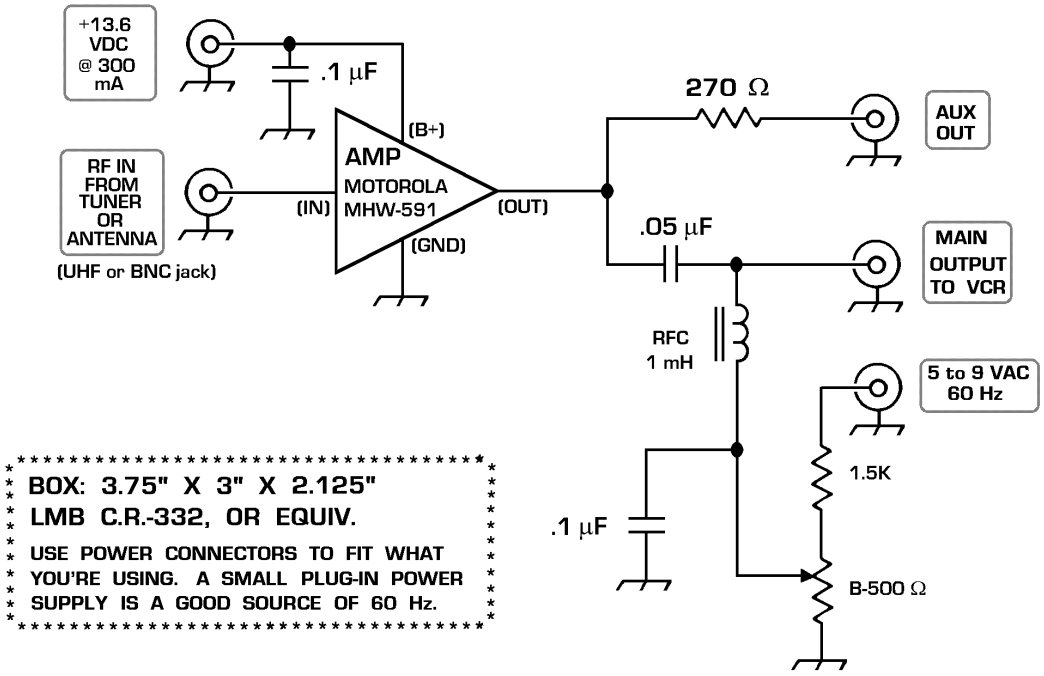

FIGURE 2: VCR TO RECEIVER SCHEMATIC