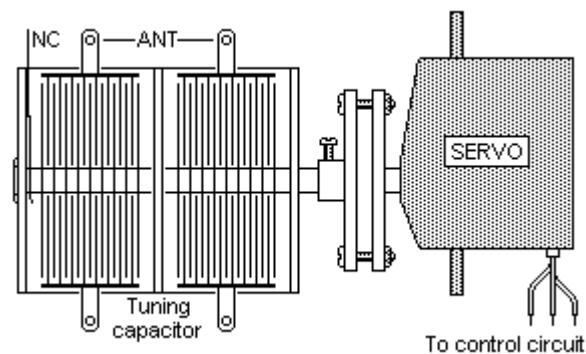


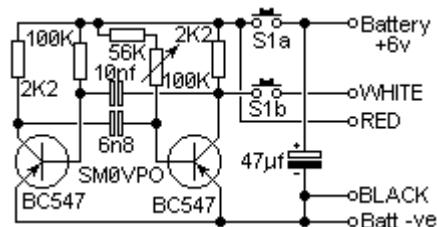
# REMOTE ANTENNA TUNER

## by Harry Lythall - SM0VPO

After doing a bit of messing around with frame and loop antennas I found that they all worked much better outside, but their very narrow bandwidth required them to be manually tuned. The obvious answer was some form of remote antenna tuner so that the antenna could be remotely tuned from inside my shack. This I did using a cheap (as always) RC-servo, of the type that is used for control of radio controlled models. Suitable servos are made by Futaba and cost typically £7.50p (UK) - \$11.00 (USA) - SEK 120 + Moms (SWE). 'Second user' (seen better days) servos are quite adequate in this application.



Above is the mechanical arrangement that I used with the packing crate antenna. I have also used this same technique with my frame antenna with 100% success. The three leads to the servo provide the 6 volt power and a control pulses for tuning. The three leads are coloured BLACK (-ve common), RED (+6 volt positive) and WHITE (pulses in). The RC servo will give 180 degrees of rotation, so any normal capacitor will work.



The RC-servo is driven from a control unit in the shack using the above circuit which generates a 1 mS pulse that can be varied from 0.5mS to 1.5mS to give the required servo rotation. S1a cuts off the supply to the oscillator and the servo, and S2b cuts off the pulses to the servo. The 47µF decoupling capacitor is necessary, but it must be wired across the battery otherwise it will store sufficient charge to give the servo a 'kick' on switch OFF which detunes the antenna.

RF was not a problem as both the frame and crate antennas worked well with up to 20 watts without arcing or 'funny happenings' to the servo. I always tuned the antennas with about one watt; just sufficient to give me a good VSWR reading, the transmitter power was then increased to the final working level.

Have fun, de HARRY, Upplands Vasby, Sweden,