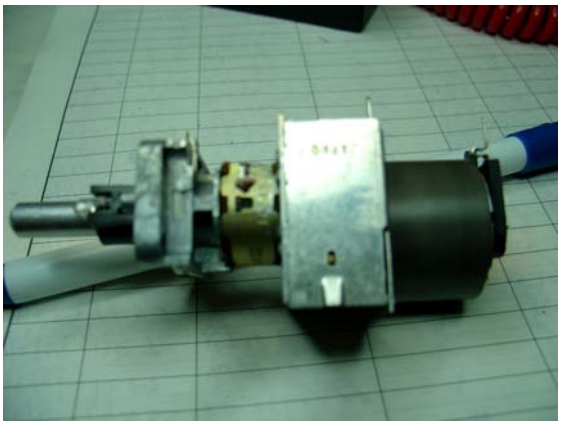
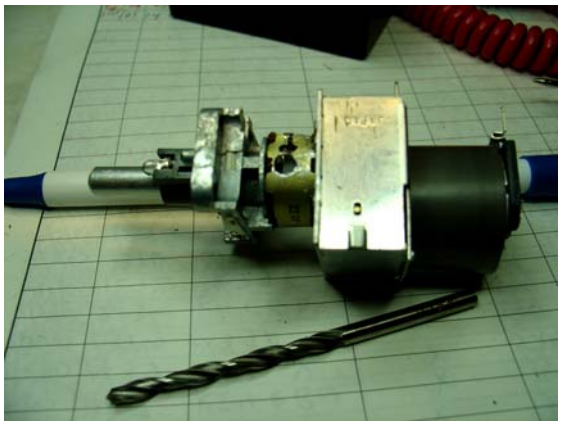
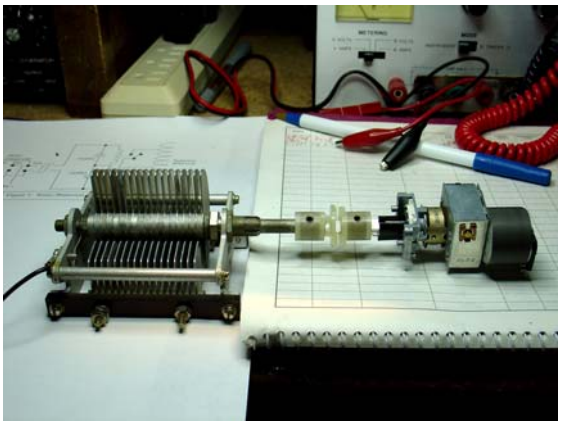
Inexpensive Slow-Speed Motor
Phil Salas – AD5X

Hams are frequently looking for a slow-speed geared DC motor for remote tuning of variable capacitors. In my case, I wanted one to tune a capacitor at the base of my Butternut Vertical to tune the antenna across the 160 meter band (the normal bandwidth is just 10 khz due to the short length of this antenna on this band). While perusing the All Electronics catalog (www.allelectronics.com), I saw that they sell three different motorized potentiometers for just $4 each. These have geared motors that turn the pots about 270 degrees in eight seconds. I ordered their part number MPOT-20K, and found that it was easy to modify to eliminate the start/stop positions on the pots. Probably the other motorized pots are just as easy to modify. Referring to photo "Before Drilling", you will see a rectangular hole in the potentiometer part of the assembly. There are tabs bent down here that act as the stops. To defeat this, I drilled out this hole with a 9/64" drill bit as you can see in photo "After Drilling". Photo "Capacitor/Motor Assembly" shows the motor connected to the capacitor that will eventually be placed at the base of the antenna. These motors use small plastic gears, however they seem to have quite a bit of torque before they stall or slip. I know these motors couldn't be used to tune a screwdriver antenna, but they sure seem to work well for relatively light loads.


Before Drilling


After Drilling


Capacitor/Motor Assembly