A home brewed rotator

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I had been going back and forth to my Yagi mast for so long that I had nearly worn a track right through the floor. Finally I decided that enough is enough and I needed a rotator. However the answer to two questions eluded me, 'how and with what'?

Then a work-mate said to me one day, 'I know where there is something you might be able to use'. I said 'OK', and thus obtained a 30:1 reduction gearbox, heavy as heck, that I put in the shed.

As happens a lot of times, it just lay there. Then one day, while partaking of a certain refreshment known as rum and cola, an idea came to mind.

This gearbox might be set up to make my Yagi mechanically rotatable!

Like a lot of people, I tend to collect bits and pieces that might at first seem useless. So, after a little more thinking, and looking through my shed, a rotator began to take shape.

The first item required was a base to sit the gearbox on, which I constructed from a worn-out grader blade, cut into four pieces and then concreted into the ground. To that was added a couple of pieces of scrap angle iron and box steel to provide a frame for the gearbox to sit on. So there you have it, one gearbox mount.

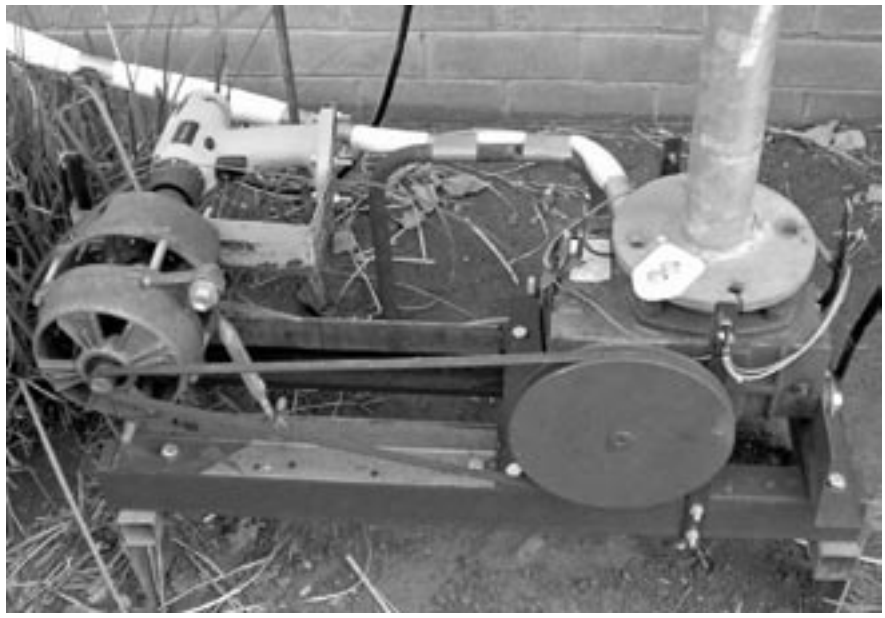
There it sat again for quite some time. Then one day, two twelve-volt cordless drills were obtained. The next challenge: how to mount the drills so that they would drive the gearbox!

One of the drills was partly modified, with the battery being removed and hard-wired to a twelve-volt truck battery for power.

It was mounted on a bracket with the chuck attached to the axle of a washing machine motor, which was mounted so that a belt could be fitted between the pulley on the motor and one on the gearbox. The washing machine motor, which does no work, was modified to fit onto the base frame.

The next step was to modify the second drill. It was wired up so that its directional switch (that is, forward/reverse) controlled the polarity of the battery power to the drill connected to the washing machine motor, and thus its rotation direction.

Overall, by using the switch on the drill at my operating station, I could control the gearbox rotation and the direction of the Yagi. For protection from the weather, a gas BBQ lid was fitted over the gearbox and the drill.



The home brew rotator

Next and finally, all I needed was a direction indicator. I decided to use 5 micro-switches placed around the base of the mast in such a way that a small piece of metal would momentarily press the switch as it rotated past. Three of these switches light one of three bulbs which I set up at my desk to show North, East and West. The other two switches/bulbs tell me when the antenna is facing South or has come to its stopping point from either direction.

The photo shows the final product with its weather cover removed. The gearbox sits under the Yagi mast at the right. At the left can be seen the washing machine motor with the drill behind it, mounted on a bracket. The micro-switches sit on brackets around the base of the mast, and are operated by the tapered lug fixed to the rotating pipe flange.

So after about six months and a few refreshments and a lot of trial and error, I can now sit at my station and track signals without going outside and turning the mast by hand.

It might take a bit of work and time, but to build something like this out of scraps and bits and pieces, and have it work, gives you quite a bit of pleasure and enjoyment.

Normally, when people see my rotator, they scratch their heads and look at it in amazement. They can't believe what a mix and match of parts my rotator is made up from, or that it actually works. However, it does, and I would like to hear from anybody else who has home brewed gear like this, or if anyone would like to ask a question regarding this project I can be contacted on 0438 671 688.

By the way, the antenna on the mast is a six element Yagi for 27 MHz, which is also home brewed, but that's another story.

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