

Subject: Radio Shack Rotator info

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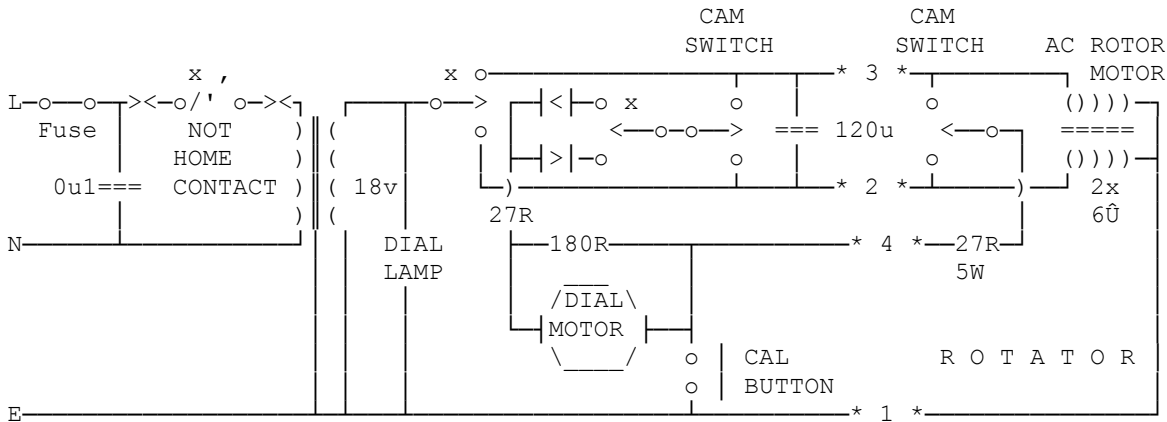
To : TECH@WW

By G8MNY

(Updated Dec 04)

This is an unusual rotator control system with no electronics. It uses a movable control plate with 3 switches on it. The mains is fed via slip rings the off home contact! And it uses a pulsed DC motor as a control servo.

DIAGRAM



x = Indicator Plate Switches, >< = Slip Rings, \* = External Connection

OPERATION

On moving the control knob & plate these switches power the rotator (lamp comes on). AC of the right phase direction is passed to the rotator motor & DC of the right polarity is selected for the dial motor.

The dial plate above the control plate that carries the lamp is moved around by a DC pulsed dial motor. The on time of this motor just enough to make its' own cam stay in step with the rotators' cam. The 2 Rs around the dial motor ensure start up & decay speed are right to maintain about 50% duty power on cycle so there is plenty of pulse width control to ensure the dial stays in step.

When the dial plate agrees with the control plate the home contact turns off the power & the lamp goes out.

CALIBRATION

As it is possible to get this type of servo feedback out of step, a calibrate button is provided underneath the controller. If the controller fails to power off after rotating this usually means the rotator has reached its mechanical stop & is not providing any more servo pulses. Pressing the Calibrate button then runs on the dial motor to catch up so the controller powers off OK.

Calibration should not be done often (once/10mins?) as it applies much higher voltage to the DC motor & heats up the 27R & stalled rotator motor in the rotator. Also rotator motor itself is too hot to touch after doing this just once!

MODS

As with other rotators the motor is well over run, so if more than 2 mins use is needed add a high wattage R (80Ω 10W) in series with neutral will increase rotator motor run time before it overheats & burns out. This also reduces the lamp power & increases it's lifetime.

Why Don't U send an interesting Bul?

73 de John G8MNY @ GB7CIP  
/EX