

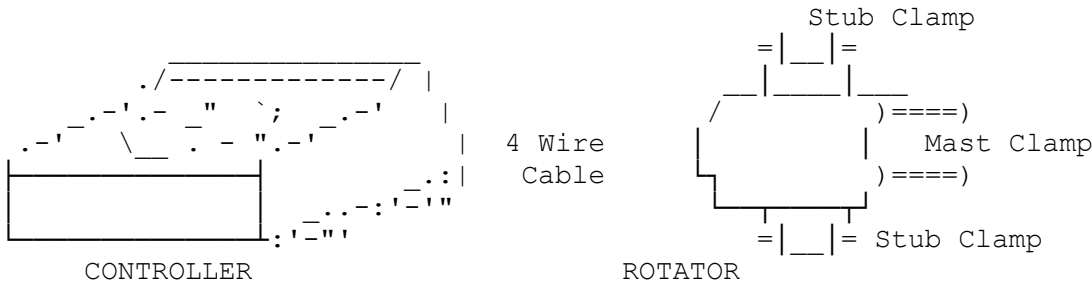
Rotator Radio Shack info

By G8MNY

(Updated Jan 15)

(8 Bit ASCII graphics use code page 437 or 850, Terminal Font)

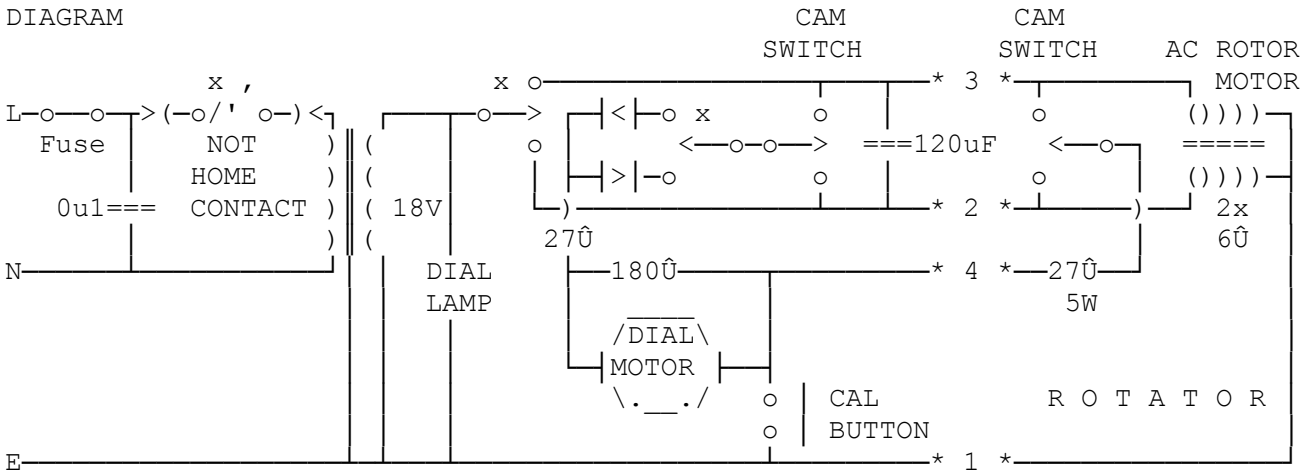
This is similar to the Hishmann Hit Ro 250 offset rotator, with an unusual rotator control system with no electronics (2 diodes) but to solve the sync issue it uses a pulsed speed feedback system. The controller has a movable control plate with 3 switches on it. The mains is fed via slip rings to the off home contact! And it uses a pulsed DC motor as a control servo.



The rotator has split phase AC squirrel cage motor & a DC motor in the controller. The series AC capacitor gives a 90° leading voltage into either of the windings determining the direction of the rotator motor. In the controller a chain of gears turns the switch plate. In the rotator 1 gear & a worm drive gives the same gear ratio to the well greased up stub mast champ tube from the motor.

Both motors need regular servicing to move grease around & stop rusting in the outside rotator etc.

DIAGRAM



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

DC & AC motor OPERATION

On moving the control knob & plate the switches power the rotator (lamp comes on). Low voltage AC of the right phase direction is passed to the split phase 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 the 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 27 Ω & the stalled rotator motor. Also the rotator motor itself is too hot to touch after doing this just once!

MODS

As with other rotators, the AC motor is well over run, so if more than 2 mins use is needed, add a high wattage R (80 Ω 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 too.

Why Don't U send an interesting Bul?

73 de John G8MNY @ GB7CIP