

# **Instructions**

## *for the Kinetic Sculpture Clocks by Gordon Bradt and Kinetico Studios*

### **Turning on the Clock**

Your clock is driven by a 4 RPM synchronous motor. Plug the clock into an electrical outlet having the correct voltage for the clock motor, depending on the country.

Sometimes the motor may seem dead or struggling to start up when the clock is plugged in, but it may just need a little help getting started. If so, pull the big brass drive wheel in the front in a clockwise direction. This is the big wheel in the front that drives the little men and is directly connected to the motor shaft. This “jumpstart” may also be necessary after a power outage.

The clock motors are built with an “anti-reversing” mechanism to keep the motor shaft turning clockwise. Sometimes the mechanism fails, and the motor shaft and big drive wheel turn counter-clockwise. If this occurs, unplug the clock, plug back in and keep repeating this until the drive wheel turns clockwise. Letting the clock run counter-clockwise will jam the clock and cause damage. You also can pull the drive wheel clockwise while the clock is running to try to correct the direction.

## **Voltage and Cycles of the Motor**

The clock timing is controlled by the frequency of your electrical system. This varies from country to country. We use different gears for 50 cycles than for 60 cycles. A clock built for 60 cycles and then run on 50 cycles will run at  $3 \frac{1}{3}$  RPM and lose 12 minutes every hour. Some of our clocks were built with 220volt motors, but most were built with 110volt motors. When using a clock with a 110volt motor on a 220volt electrical system, a step-down converter must be used, to step-down the 220volts to the 110volt motor. The clock motors don't require a lot of energy, as would a hair dryer, so a simple converter will do.

## **Setting the Clock Hands**

The hands of the clock are regulated by the handmade, coiled brass gears inside the clock frame. Each hand, the hour hand and the minute hand, is mounted and friction fit on separate gear shafts. Each hand can be turned independently in either direction at any time, in order to set the time.

## **Timekeeping**

The clock runs on a 4 RPM synchronous motor (at 60 cycles or hertz.) The coiled brass gears are built to keep accurate time, with the help of a few detents to keep the gears from slipping backwards. Although some of the gears do not appear to be

moving, they are making a complete rotation over a 12 hour period. If your clock does not keep accurate time over a 12 hour period, one or more things are out of adjustment, broken or worn out.

## **Noises**

The clock is driven by a synchronous timing motor. These motors commonly make humming, buzzing, clicking or grinding noises. This is normal and does not indicate any malfunction of the motor or clock. The noises may come and go throughout the life of the motor.

The handmade gears, men and parts will also naturally make noise as they operate. Squeaking noises usually indicate that the clock needs oil directly on where it is squeaking. Over time, the part that is squeaking will wear out without oil.

## **Maintenance**

Our Kinetic Sculpture clocks are first a piece of artwork, that just happen to keep time! The clocks are handmade of soft brass, and can wear easily. The motors are also vulnerable, and may fail under prolonged use. We recommend that you only start up the clock when you are there to enjoy it or want to show it off. You could also put the clock on a timer, so that it will come on and go off at certain times. Never leave

your clock unattended for lengthy periods, in case something breaks or jams while you are away from the clock.

The clocks are coated with a clear lacquer finish. Do not use brass cleaners, grease, or WD40 lubricant. To clean or dust, we recommend an old T-shirt rag, which is absorbent and will not leave lint. Metal loves oil, and will not attack the lacquer finish. Use a light machine oil, like sewing machine oil or 3in1 oil, on your rag to wipe off the frame and parts. With a small artist's brush, apply oil to the big drive wheel in the front that goes around the fastest. Also apply oil to the small copper gears that work against the drive wheel to move the little men. These parts particularly have an enormous amount of friction against them. Use your rag to soak up the black residue that the oil loosens up. For Seven Man Pedestal Clocks, clean the pole that the Little Man rides up on with oil and your rag.

When the old oil dries up, it often falls to the table below the clock as black specks. Fresh oil can stop that, and save parts from wearing. The clock also can shed actual brass metal and oxides and drop to the table below the clock when it begins to wear. This shedding means that something in the clock needs lubricating oil.

Questions?

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