Living With A Cuckoo Clock

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This document is intended to help you become adjusted to your cuckoo clock. It may take some getting used to but then it will provide you many hours of personal enjoyment.

If you have any questions, please contact me at the Cuckoo Clock Hospital - 703-256-2684 or on-line at lloyd.lehn@verizon.net.

This paper focuses on:
1) the traditional cuckoo clock with two or three chains. It does not address the mantel cuckoo clocks with springs wound like ordinary clocks.
2) the “rack and snail” clock movement.
If you have a “count wheel” cuckoo clock, these instructions will be correct except for the section on setting the clock. Talk to your repairman about that type of clock or take a look at the appendix where I describe some clues as to which type clock you own.

1 Three Basic Rules

Real estate agents have three basic rules: location, location, location.

Cuckoos have three rules as well:
1.1 Don’t turn the minute hand backwards
1.2 Don’t turn the minute hand backwards
1.3 Don’t turn the minute hand backwards

2 Hanging the Clock

It might seem like a simple thing but it will pay you to give some thought to where and how you plan to hang your cuckoo clock.

2.1 Ideal location

You probably won’t have an ideal location, but some of the things you should consider are:

2.1.1 Interior walls
An interior wall will provide a more constant temperature and hopefully, fewer vibrations.

2.1.2 No doors or windows on the wall
Doors and windows draw people and people cause clock accidents.

2.1.3 Out of traffic pattern
You don’t want folks catching the chains as they walk by. Falling is not good for cuckoo clocks. They break easily.

2.1.4 Vibrations
There are no machines nearby which will cause the clock to vibrate; e.g. refrigerators or air conditioners.

2.1.5 Dust free room
No clocks like dust or dirt. Cuckoos are no different.

2.2 Height

Your clock should be high enough so that the chains can go all the way down without hitting the floor (or any other object which might work its way under your cuckoo clock.) This is usually about 6 feet or so. On the other hand you probably want it low enough to be able to see the face of the clock. If you can’t get it up to the full height of the chains, then you will have to pull up the weights more frequently.
2.3 Wall anchor

One of the main problems with cuckoos is that they fall off the wall --- and nobody ever knows why. Usually the cause can be attributed to one of two things (other than someone pulling them off the wall).

First: your cuckoo is heavy. It has up to three weights connected to it. If it is an 8 day clock, those weights will weigh several pounds each. One of the flimsy little picture frame hooks simply is not strong enough to hold up a cuckoo clock with weights on it. You need a heavy duty screw or nail. That screw should go into the studs behind the sheet rock. Just anchoring in the sheet rock is very risky.

Second: The hook/screw/nail should have a head on it which will pass through the hole in the back of the cuckoo and then move up inside the clock. The cuckoo should sit on the shaft of the hook behind the head. The head will help keep the clock from slipping off the hook. Use a screw/nail with a square shoulder on the back side. Do not use a standard wood screw which has a taper behind the head.

If your only option is to anchor it just to sheet rock, make sure you use something like a molly bolt which expands behind the sheet rock. The head of the molly bolt should stick into the clock far enough to prevent the clock from slipping off.

One of my clients claimed her cuckoo fell off the wall at one in the morning while everyone else in the house was asleep. I could only guess that: the hanger did not have a head on it; the hanger was level or tilted down a bit; and/or some vibration caused the clock to work its way to the end of the hanger and fall off. The good news was that the case was salvageable. The bad news was that the movement was bent so badly it had to be replaced.

3 Setting Up the Clock

Once the clock is on the wall, there are several steps to setting it up.

3.1 Remove shipping constraints
Hopefully the chains have been confined by wire, string, or rubber bands so that they don’t fall off their sprockets. Remove these constraints.

I usually use dental floss to tie them. It works great.

3.2 Straighten out the chains
Those darn chains always get tangled up. If you are patient and don’t try to force them, they will usually untie easily. Be patient. Don’t force them or you might have a real problem when the chain links bend and lock together.

3.3 Hang pendulum
Hang the pendulum on the wire that looks like a stirrup on a saddle.

3.4 Hang the weights
Most cuckoos use the same weights on all chains so there should be no problem in putting on the weights. However, a few clocks do have different sized weights. If that is the case, read the instructions or call the person who sold it to you. If you can’t find out specifically, try various combinations until it works correctly.
4 Winding the Clock

You won’t really “wind” the clock. Rather you will raise the weights by pulling down the other half of the chain(s). You’ll have to do this every day for a 1 day clock and once a week for an 8 day clock.

Be careful when you do this since you could pull the clock off the wall. With the large weights, it is advisable to lift the weight with one hand while pulling down on the chain with the other hand.

You must be careful when you do this. Remember we said that you needed a good anchor for the clock. Be careful. Pulling on the chains is when you might pull the clock off the wall. Or more likely, you will tilt the clock a bit and then have to re-adjust it until it sounds right.

Pull on the chains slowly. Pull one of them at a time. With the heavy weights of 8 day clocks, I’ll say it again, it’s a good idea to use two hands for each chain - one hand pulls on the chain and the other helps raise the weight.

NOTE: There are cuckoo clocks without chains. These are wound just like other clocks.

5 Leveling the Clock

You may try to level the clock with a level. That will not help too much. Instead adjust the “level” of the clock by listening to it.

First level the clock roughly with your eyes. Then start the pendulum swinging back and forth. Then listen to the clock. SHUT YOUR EYES and listen. You should hear an equally spaced ticking sound i.e. tic - tic - tic - tic etc. If you hear tic - tic ---- tic - tic --- tic etc. (i.e. there is an unequal time space between each tic.) tilt the clock right or left a bit until the ticking is equal.

Once it is equal leave it alone. If you are unable to to get it to sound ok or can only do so with the clock at some strange angle, see your repairman. He will be able to adjust it so that it is almost level when the ticking is equal.

Note: once you have it ticking correctly, you might want to mark the wall with a small pencil dot so that you can relocate it again if you happen to move the clock out of position - this may happen when pulling up the weights.

6 Setting the Clock

The cuckoo must be set to the correct time of day when you first get it and any other time it has inadvertently stopped i.e. you forgot to pull up the chains on time or you went on vacation.

6.1 The Hands

It will help you if you understand the relationship of the hands.

6.1.1 Hour Hand

The hour hand is normally held by friction on a tube which revolves once every 12 hours just like the hour hand. This hour hand can be adjusted by simply rotating the hand to the correct spot. The tube will not turn as you rotate the hand on the tube. Once you do this, it will probably never need to be adjusted again.

6.1.2 Minute Hand

The minute hand is connected to a shaft which runs through the tube for the hour hand and down to the inside the clock movement. It makes one revolution per hour. With Regula movements, the minute hand is attached to this shaft with several components. There is a washer with a square hole in it. That goes on first. This washer has a little ledge on one side which holds the minute hand. The hole in the minute hand is placed on this ledge on
the washer. Then you add another standard washer. It is followed by the hand nut which fastens the whole arrangement together. The nut is screwed on the end of the shaft. If the nut is loose the hand can rotate and will not move but simply hang down until the nut is tightened.

In effect you have created a sandwich of square hole washer, minute hand, standard washer and then hand nut. Occasionally the standard washer is missing. It’s a good idea to have one but the clock will run without it.

6.2 Inside the clock
Inside the clock, the shaft for the minute hand is attached to a mechanism that only works in one direction. If you turn the minute hand backward, you might break the mechanism and the clock will not work. Movement designers try to design clocks so that breakage won’t happen but don’t count on it. NEVER turn your minute hand backwards.

6.3 Initial setting
You will need to set the clock from scratch when you first start it. But you may also have to re-set it when you forget to pull the chains and the clock winds down at some strange time.

The way to set it is as follows.
- Pull up the weights
- Turn the minute hand clockwise until the clock cuckoo the hour. Note: the minute hand might not be on the hour.
- Rotate the hour hand to the appropriate hour on the dial.
- Then turn the minute hand clockwise until the half hour strikes. The hand might not be on the six.
- Loosen the hand nut just a bit and rotate the minute hand to the six - without moving the shaft it is attached to.
- Tighten the hand nut
- Turn the minute hand to the hour and make sure it strikes the correct time for the number it is pointing to. If it is not correct, repeat the above steps until it is correct.
- Continue to turn the minute hand around and around, hour by hour until you get to the correct time. Go slowly stopping to let the clock cuckoo at each hour and half hour if it is a count wheel clock. You do not need to stop if it is a rack and snail clock.

- Your clock should be set properly

NOTE: there are some count wheel clocks that allow you to use a wire or string to advance the “cuckooing” mechanism without moving the hands. If you have one of these follow the instructions for that type of clock. Normally it means that all you have to do is set the time to some hour and then pull the chain time after time until the clock cuckooes the proper number of times.

6.4 Re-setting the clock
If you forget to pull the chains one day and come back and the clock shows 9:46 when it’s really 1:30 you will need to pull up the weights and reset the clock. Go to the above section on setting the clock and follow that procedure and you should have no problem.

The biggest problem will occur when the strike stops first and the clock will not continue to strike. However, if the time side continues to run, it will be out of synchronization with the strike side. Then when you remember to pull the chains you will have to start the setup procedure from the beginning.

6.5 Vacations
If you are going on a vacation or will not be around when the chains need to be pulled up, you might want to simply stop the clock before you leave by stopping the pendulum. That will help maintain the synchronization between hour and minute hands and the striking of the clock.

Then when you return, all you will have to do is move the minute hand (wait-
Regulating the Clock

Regulating is a term which means setting the clock to run one hour in one hour. This is normally done in a cuckoo clock by adjusting the length of the pendulum.

7.1 The Pendulum
The pendulum is the device which controls the speed of the clock. The clock is a machine and because it has a fixed set of gears, it always takes the same number of ticks to make one hour. The exact number depends on the clock. The correctness of the time of the clock depends on how much time it takes for each tic. The length of the pendulum controls that speed.

The length of the pendulum is adjusted by moving the pendulum bob up or down. On most cuckoo clocks the pendulums are made out of wood and simply adjusted by moving the bob up or down. It is normally held on with a simple bracket that provides the necessary friction to hold it in place.

The key thing to remember is that for any given pendulum:
- Shorten the pendulum to make the clock go faster.
- Lengthen the pendulum to make the clock go slower.

7.2 Speeding up the clock
If the clock is running slow, speed it up by shortening the pendulum i.e. move the bob up just a bit and let it run for another day and see if you need to make another adjustment.

7.3 Slowing down the clock
If the clock is running fast, slow it down by lengthening the pendulum i.e. move the bob down just a bit and let it run for another day or so and see if you need to make another adjustment.

7.4 Cuckoo Accuracy
Most cuckoo clocks are NOT precision instruments. If you get them to be accurate to within 3 to 5 minutes a week, be happy about it. Many are more accurate than that - if you are lucky. The actual accuracy of the clock depends on many factors including temperature and barometric pressure. With a cuckoo don’t worry about those other factors. Just adjust the length of the pendulum until you are about right and then learn to live with that.

I usually run my clocks a bit on the slow side since I can move the minute hand ahead once in a while. If it’s a bit fast, I have to stop the pendulum and then remember to restart it again in a few minutes. Just DON’T turn the minute hand backwards.
8 Moving the Clock

When you move the clock from one spot to another in the house or if you pack it up for a major move between houses, it is a good idea to take a piece of string and tie the two halves of each chain together - very close to the bottom of the case. The idea is to prevent chains from becoming slack and falling off their sprockets while in transit - a common problem with cuckoos. Use one piece of string for each chain and tie both halves together. When you get to the new location, hang the clock on a sturdy hook, cut off the strings, hang up the clock, set the clock, and your clock should be ready to provide you many hours of enjoyment.

I use dental floss for the string. It is inexpensive. It is stiff enough to make it easy to fish through the links of the chains and ties easily. It also cuts easily.

9 Enjoying the Clock

You should be ready to enjoy your cuckoo clock. You will not need instructions for this part of the operation.

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PS
If you would like to see a color copy of this paper, it is on:
APPENDIX A

Two Types of Clocks

Cuckoo Clocks usually come in one of two movement designs:
- Rack and Snail
- Count Wheel

**Rack and Snail** clocks are the most common among newer clocks but there are many count wheel clocks still being used. They are differentiated here because their care differs.

I probably see more cuckoo clock movements made by the Regula company than any other company. I can’t think of any of them which were not rack and snail movements.

The name Rack and Snail comes from the geometric shape of their parts.

I think you can see that one part looks like a “snail” and one part looks like a “rack” with teeth. These two pieces are the primary components which determine how many times a clock cuckoos. The hour hand is jammed on the barrel of the snail with a friction fit. The snail and the hour hand rotate together as time progresses. The rack is allowed to fall on the snail when the clock is about to strike. The distance it falls depends on the radius of the snail at that point. The largest diameter of the snail strikes one while the smallest diameter strikes twelve.

Unfortunately, one cannot usually open the back door of the clock and see the rack and snail because they are between the movement and the inside of the front wall of the clock where they cannot be seen.

However, there is usually another clue that the movement is a rack and snail movement. The back of the clock movement will look something like this one.

The key element of the rack and snail movement is the star wheel. This wheel rotates clockwise and the fingers lift the bellows lift levers and the gong hammer to provide the cuckoo sound and the gong strike - the traditional sounds of a cuckoo clock.

Thus if you take the back off your cuckoo clock and see a star wheel which raises the other levers, the odds are you have a rack and snail clock.

**Count wheel** clocks are quite different. The rack and snail clock has a direct link between the hour hand and the snail (the device which controls how many times the clock strikes). The hour hand and the snail will never get out of synchronization. However, there is no such direct link between the hour hand and the counting device in a count wheel clock. They are connected by a series of gears and levers. Thus they can get out of synchronization. That is frustrating and probably the main reason count wheel clocks are no longer produced. Let’s take a look at one of them.
The obvious tip-off that your clock is a count wheel clock is that it has a count wheel which will be visible if you look into the back of the clock. It will look something like this.

You should notice that it also has bellows lifting levers and a hammer for the gong. But is also has this big wheel with a bunch of slots in it. This wheel is driven by the small gear. The large wheel makes one complete revolution each 12 hours.

The number of times the clock strikes is controlled by the count finger which is a small piece of wire which either drops into one of the slots or rides on the outer periphery of the count wheel. The clock only strikes when the finger is raised. If it strikes and then falls into a slot, the clock stops striking.

You should notice that the slots are wide enough to allow the finger to fall into the slot when finished striking on the hour but also wide enough to allow the clock to move on to strike only once on the half hour. The next time the finger is lifted, it tries to fall it hits the outer edge of the wheel and strikes again because it can’t fall. It does so until it falls into a slot.

This mechanism can become un-synchronized with the hour hand and has to be manually re-synchronized - a pain.

There is one other major difference between a rack and snail clock and the count wheel clock.

Whereas it is unwise to ever turn any cuckoo clock backwards. It is especially critical that one does NOT turn a count wheel clock backwards. Turning a count wheel clock backwards will break it.

The device that sends a signal to strike looks something like this on a count wheel clock.

The left end of the unlocking lever is raised by a small pin on the back of a gear on the hand shaft (not shown). That the locking lever around the pivot point. As the gear turns the locking lever falls off the pin and the strike sequence starts.

If one were to turn the hands backwards, the gear/pin would rotate backwards and the pin would become jammed in the hook on the end of the locking lever. Push it hard and something would give. The locking lever would be bent out of shape or the pin would bend and perhaps break off.

Thus, DO NOT TURN THE HANDS OF A COUNT WHEEL CUCKOO CLOCK BACKWARDS.