

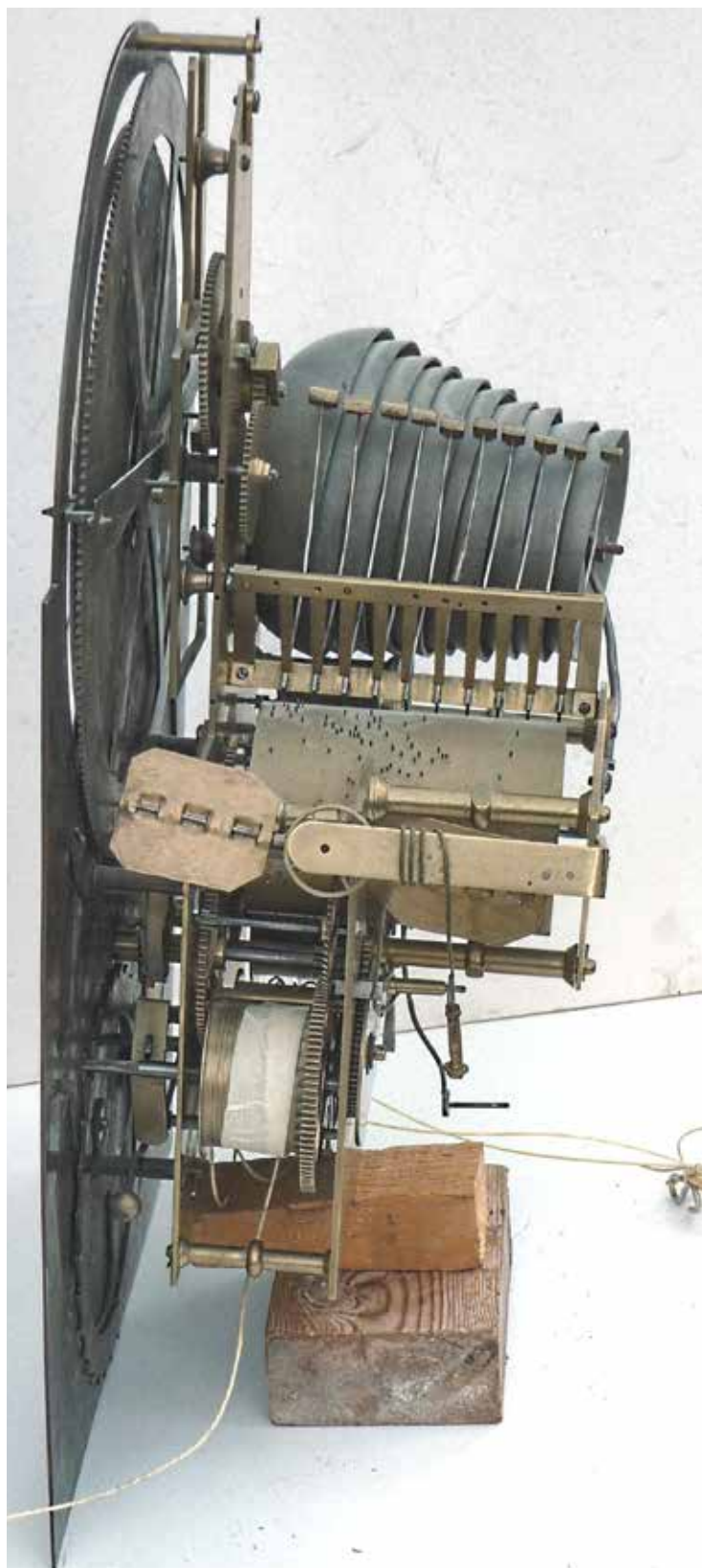
# SETTING UP AND MOVING A PENDULUM CLOCK

by Brian Loomes, UK

**M**oving a pendulum clock with anchor escapement can be difficult unless you have a little guidance. Of all these the longcase clock is trickiest because the long pendulum calls for greater care at setting it in balance, usually known as

*Figure 1. When moving an eight-day longcase clock you need to hold the weight lines in place by taping round the accessible part of the barrel. In a complicated musical clock, such as this by Thomas Lister of Halifax, it is vital.*

setting it 'in beat'. These notes deal principally with longcase clocks. The same escapement is often found on table clocks, bracket clocks, hooded clocks and some lantern clocks, but with these we can often get round the problem more easily by leaning the clock to one side or the other till it obliges. Clocks with a short (verge) pendulum are less fussy about being level.



This problem may face the novice in two different ways. Firstly as a clock that runs well in its present position but that you need to move. Or as a clock that is new to you and that you need to assemble and set going for the very first time—such as one you have just inherited or bought at auction. If it is the first of these then you can attempt to ignore my notes about levelling. But floors in different rooms or different houses seldom agree on levels, and you may eventually have to follow through the whole process of setting the clock level and in beat.

Sometimes you can persuade a clock to run by having it at a silly angle, or by pushing old pennies or wooden wedges under the seatboard. But this is hardly ideal and next time you move the clock you start with the same performance all over again. My suggestion is that you bite the bullet right away and set up your clock to a true, repeatable level as described below.

Whichever is the situation, what you must not do is attempt to move a longcase clock fully assembled. If you feel strong enough to try you will almost certainly damage the clock or yourself or both. If the clock was set



up properly to a measurable level, then moving it is very easy. But it probably was not, and so these notes will talk you through the way it should be done, and will make it much easier to repeat the process in the future. Once you have done this you will feel like a complete expert and well able to advise friends how to go about it.

A professional clock man can do this job easily and quickly, but you will have to pay for his expertise and time. When you



do it yourself for the first time you may find this slow or tricky but most people can manage it with a bit of patience. If you get into difficulty to the point where you have to admit defeat, you can always call in an expert at that time. When you watch him do it you will see how very simple it is. An expert can assemble a clock in three or four minutes. As a beginner it may take you ten.

Many years ago a lady from far Lancashire came to see me and bought two longcase clocks. She wanted them delivered that same day as a surprise for her husband. This was impossible for me. She decided to take them both home herself in her estate car and I explained how to assemble them. She told me later that when her husband came home from work that day he was amazed to find both clocks up and running. He absolutely refused to believe that she carried them home and assembled them on her own.

There is a sequel. Some years later she phoned me to say they were moving to North Wales and could I remind her how to move the clocks. I did, and she did, and phoned me later to say all was well. So it can be done by an absolute beginner.

## Dismantling the clock

An eight-day movement, the kind mostly described below, will probably be attached to the board it sits on (its seaboard) by bolts. Thirty-hour clocks may often be loose with the seatboard

nailed to the inside case uprights. These 30-hour clocks have just one weight but otherwise the treatment for either is the same. Always pack the movement-with-dial *upright* in a box for transporting, packed all round with paper or polythene. Be especially careful not to let it lean backwards, where the crutch can easily be bent, and that is the major cause of clocks being out of beat.

If you are not used to doing this you probably need a second pair of hands, as there are moments when you may need someone to hold the movement safe from falling off. But it is quite possible to do it single-handed.

Remove the hood. It slides forward. Watch out the hood door does not swing open and hit you in the face. If it does, don't drop it—just stand there and take the pain!

Wind the weights up till the weight pulleys just show when the trunk door is open. By that time most of each weight line will be coiled neatly around each drum. These are usually catgut but sometimes are wire. If you leave too much line hanging down it makes for awkward handling. Too little line means you cannot see the pulleys to remove or re-fit the weights, as the pulleys will be hidden behind the door frame top. I find 1ft of visible length is about right. With a 30-hour clock there are no weight lines to worry about, just a continuous rope or chain, which takes care of itself.

Put masking tape round the neatly-



*Figure 2 (left). This regulator happens to have the weights wound at just about the right height for moving. High enough to avoid a struggle with long trailing lines and low enough to see the pulleys to hook on the weights.*

*Figure 3 (above). This wooden plank loaded here represents the backboard of a longcase clock. It is 9ft long, far longer than the backboard of any longcase clock you are ever likely to see.*


*Figure 4 (right). The best place to position a spirit level is in front of the glass hood door. This example is a hooded clock. It is even more important to set a wall clock level than a longcase as any lean from vertical will be more apparent.*

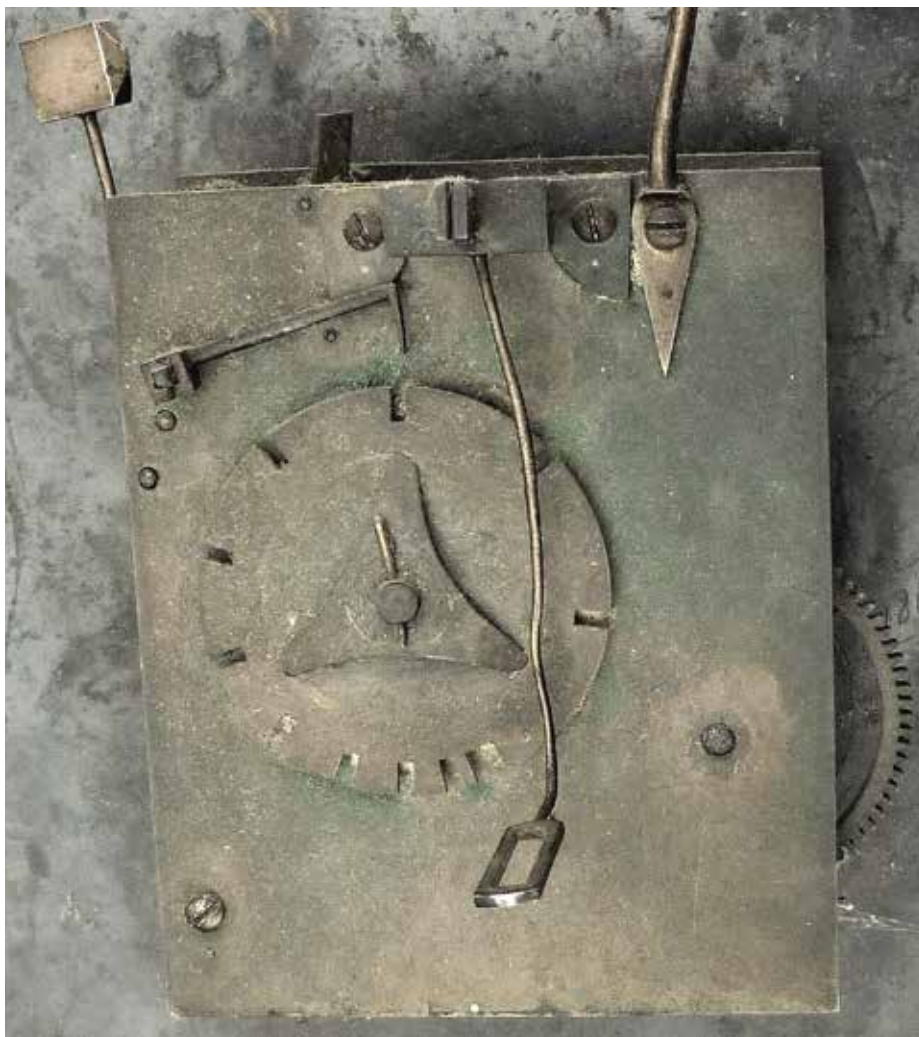


coiled weight lines on the barrel to keep the lines secure from unwinding themselves. If you don't then once the weight tension is removed their springy nature will cause them to try to unwind and get in a tangled mess. Tangled lines are very awkward and time-consuming to sort out. If you try to run a clock with tangled lines it will probably keep stopping as overlapping coils nip those underneath and need to be freed one by one.

Sellotape will *not* hold the lines down as they will vary from being slightly greasy to very oily. You need masking tape. Plastic parcel tape will do at a pinch but is unruly and not as secure. Most of each line will be coiled neatly round each drum. Put the masking tape to cover most of (at least the top, accessible section of) the lines in the same direction as the lines, that is across the barrels. If you try to put the tape along the length of the barrel (end to end) it will come loose

and let the lines free. Do not remove the weights until you have the lines taped down securely.

Take off the weights after making sure you mark them right and left. The strike weight (on almost all clocks the left one) is often heavier than the right. If you put the wrong weight on the clock may run but fail to strike, and that can cause the clock to jam completely, which will mean calling in your expert. It may be easiest to leave removing the pendulum till last, 



*Figure 5. The long bent rod of this old 30-hour longcase clock is called the crutch. This one has been bent many times in the past. The pendulum suspension spring inserts up through the open 'box' at its lower end and slots into the slot in the back cock (the brass casting held in place by two screws).*

as meantime it will hold the movement safely in place while you are fiddling with the weights.

The pendulum hangs by its suspension spring from the back cock through the crutch. Remove the pendulum by lifting the top end of the suspension spring upwards then sliding it outwards then downwards through the crutch.

The crutch is made of pliable steel and is easily bent to the required position. Unfortunately this means it is very prone to unintentional bending, which is not obvious and is the reason that clocks often fail to run.

Over 30 years ago I sold a clock to a certain client, who aptly announces himself Mr Clumsy each time he phones me. Every two or three years he re-

decorates that room, carefully removes his clock first, puts it back again later and phones me nearly in tears convinced that this time he really has broken it. Is the clock still under guarantee 30 years later? Of course, he knows perfectly well it is not, but he asks anyway. Each time I talk him back through re-setting his crutch position, which he is certain he has not bent this time because he was so careful with it. A week later he phones back full of apologies to say the clock is running well again and it must have been the crutch after all.

The clock movement sits on (and is usually bolted to) a wooden seatboard. Some seatboards will have nails or screws at each end for security. These need to be removed at this point. Once the weights and pendulum are removed many movements will want to topple forwards and fall to the ground. Someone needs to hold it to ensure this does not happen.

With weights and pendulum removed, and any seatboard nails or screws, the movement (and its attached seatboard) is usually free to lift off and so out of the case. Keep upright at all times. Never let the movement rest on its face or back (where the crutch will get bent).

## TRANSPORTING THE CLOCK

If you are moving your clock to a different house always try to carry it yourself. The only kind of clock likely to be a bit daunting is a longcase and you may be surprised to learn that most ordinary family cars can accommodate this type with the possible exception of very small cars or very large clocks. It is a matter of how you do it, and we are not talking of such drastic steps as removing seats. It does not matter whether the car is a hatchback or a type with a separate boot.

As a dealer in longcase clocks for over 50 years I usually persuaded buyers to take the clock home in their own car, whenever possible. This forced them to pay attention to how to handle and assemble it, which meant they could do it again at some future time if need be. I always specified that if they had any problem assembling the clock or getting it running I would come across myself and sort it out. Never once did I have to

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do that.

Some 20 years ago I sold an average-sized longcase to a buyer who came to collect it in a Metro—as we had pre-arranged he would. What I did not anticipate was his bringing along his wife and teenage daughter! We coped, but only just, and he left for home able to drive quite nicely except he could not get into reverse gear. So how do we go about loading a longcase clock into a family car? Easy. Even with one passenger, if you like—but not with two!

This can be done by someone working alone, but it is much easier if two people



are available for loading the body into and out of the car. When dismantled we want to load the main body of the clock first, the trunk. The other parts—hood, movement upright in a cardboard box, weight(s) and pendulum—will either pack around the trunk or (some of them anyway) in the separate boot area. A pendulum will usually nestle safely across the back seat or across the rear parcel shelf.

The plan is to rest the trunk lying on its back on the fully-reclined front passenger seat, like a sleeping passenger. Best protect the upholstery by resting a blanket across the seat. An estate car is dealt with in exactly the same way as a car. No estate car has behind-the-seats loading long enough to take a longcase body, so forget flatbed loading. First recline the front passenger backrest as low as possible, then slide the passenger seat as far back as possible. The top part (just the upper backboard really of about 1in thickness or so) will fit into the passenger footwell, usually till the extreme top touches the floor, the case feet uppermost, where a sleeping passenger's head would be.

The rear seatbacks are left *upright* in their normal position at all times. No

matter whether they split or however ingeniously they may fold, you must resist all temptation to fiddle with them. Just leave the rear seats *entirely untouched* as they normally are. If a passenger travels with you he or she must sit in the rear passenger seat behind the driver going home.

In a hatchback or estate you can probably feed the trunk in on its back head first over the top of the raised rear seat backrest (still in its normal upright position). If there is a rear-seat headrest, remove it or fold it down. The deepest part of a longcase clock is usually the foot and that depth seldom exceeds 10in. If there is still not enough space between the top of the backrest and the roof to let the trunk through (11in is usually ample), then we will revert to the system used for a car with an old-type boot—plan B.

Plan B will work for most cars (or estates) and most clocks. The case trunk is to rest like a sleeping passenger as in plan A. To get it into position feed it in on its back, the top end first, through the driver's side rear door, swing it round to lie in the sleeping passenger position, case feet nearest the roof. If the car is a two-door, or if the driver's seatback is in the way, then *temporarily* recline the

*Figure 6. When bending the crutch to re-set the angle you must bend it in the stem, not at the top, or it may snap off at the joint. It does not matter how many bends are in the crutch stem, what is vital is the overall angle of the fork to the crutch top.*

driver's seat backrest as you have done already with the passenger seat and load the trunk in through the driver's door.

With some cars it may be easier to insert the case feet first, which will lie nearest the roof. As soon as the trunk is in the required position raise the driver's backrest to its normal position. It may be that raising the backrest of the front passenger seat slightly once the trunk is in place will support it more steadily. It is usually possible to put the seatbelt around the reclined trunk to prevent it sliding about—just as you would with a passenger.

There are two advantages with this loading method. First, it leaves the driver's side rear seat free for other items such as the movement or

a passenger. Second, the entire boot or behind-the-seats area is completely available for loading.

Sometimes you may be obliged to employ a carrier to take the clock, perhaps with other household goods. Many will tell you they can handle a longcase clock safely. Don't believe them! You will not find out till you have to phone the clock restorer that your confidence was misplaced. Let them carry the case if you must, but always—*always*—carry the clock part (and pendulum and weights too, and the hood with its fragile glass if you can) in your own car, after you have dismantled it yourself and packed it safely into a box. Do not let removal chaps anywhere near the clock, not even to dismantle it, as you can do this yourself. If they can break something, they will.

## SET UP THE EMPTY CASE

To have a chance of running your clock must stand firm and be 'level', known when set up as being in balance or 'in beat'. Level means different things to different people. 'It looks level to me,' will not do. You need a spirit level. You need your case to stand at a level that can be checked, a level that can be re-set to the same level if the clock ever needs to be moved again, such as when decorating. If you let decorators move it, it will never run again.

To set up a longcase clock, first get your *empty* case where you want it and wedge it so that it leans tightly up against the wall. It is much easier to get the case set up as you want it without the clock in it and then insert the clock after the case is fully installed. The case must stand firmly and securely so that it cannot rock or wobble from side to side or from front to back. This may mean taping a wooden block or packing piece between the backboard top and the wall to fill the gap caused by your skirting board at ground level. Many clocks already have a wooden batten on the upper backboard so that this can lean against the wall.

A clock that can wobble to and fro may keep stopping, and, at worst, can crash to the ground. I have seen this happen and it is not a pretty sight. So the case must be firmly positioned and leaning tightly back against the wall. Some owners like to screw them to the wall, though this is not essential.

If you do plan to screw the case to the wall, however, the best thing is to let the clock run for three or four weeks first, so that you know it is levelled correctly. Then drive your screw home to hold it firm and safe from dashing children and the roving vacuum.

You need to have some means of

ensuring that you can re-level the case again if it moves, *eg* by sinking into the carpet, or if you decide to position it elsewhere. Therefore it is wise to take a particular surface on the case which you can set level with a spirit level. The flat ledge in front of the glass hood door is a good place to use for levelling, as all clocks have a flat surface there—the lowest projecting moulding of the hood itself.

With that ledge level side to side, lean the clock very slightly backwards firmly against the wall. Too far back and the pendulum will bump against the backboard; too far forward will cause the weights to bump against the door. This side to side level is the only one which matters from now on. If need be pack

If the clock stops infrequently, the setting is probably bent only slightly out of true

small wedges under the front feet to level the case side to side and make it lean against the wall. Your case is now level. But that is just the case. Once the case is 'spirit level' you now have a means of levelling it forever. But you still have to set the clock 'in beat' so that it will run reliably with the case at that level.

## ASSEMBLING THE CLOCK

Set the movement with its wooden seatboard in position, hang on the weights (two with an eight-day, one with a one-day or 30-hour clock). This holds the movement safely in place, leaving both your hands free to fit on the pendulum.

Make sure the dial is positioned centrally to the door glass. The pendulum fits at the back of the clock movement, and slides through an opening called the fork within the suspended iron rod at the back of the movement, which is called the crutch.

Once the pendulum is in place, give it a gentle push side to side and see what happens. If the crutch is set correctly, the clock should run. The crutch may have been bent in transit from its true position, and if so, this will cause the clock to keep stopping. If the clock stops infrequently, perhaps after a few hours, then the setting is probably bent only slightly out of true. If it ticks for only a few minutes, it is probably bent seriously. You will now need to re-set the crutch by bending it very gently to the left or right. This may take two or three attempts on a trial and error basis.

When level the clock will tick evenly from left to right, the time lapse between ticks being about equal and regular—just like somebody walking. A clock 'out of beat' will tick unevenly, like somebody limping, with each tick alternately long and short. If you watch the pendulum bob you will probably see it swinging further over to one side than the other. Bend the crutch gently in the middle of its length, not at the top, or you may break the joint. If the clock ticks heaviest to the right, then bend the crutch to the right, and vice versa. You will hear the difference when you next push the pendulum to start the clock.

The anchor escapement is also called a 'recoil' escapement as the escape wheel recoils slightly with each tick. If you watch the seconds hand you will notice it recoil slightly after each forward movement. When 'out of beat' one tick will cause the seconds hand to stop dead after its forward movement and on the next tick to recoil exaggeratedly. When 'in beat' the recoil will be about the same with each tick.

With other types of clock—wall clocks, bracket clocks, mantel clocks—whether weight-driven or spring-driven, the principle of setting into beat is exactly the same. The clock must be in beat, and this is correctly done by adjusting the crutch position.

The same result can sometimes be achieved by leaning the clock to its left or right, but this is not a satisfactory method, as you have no proper means of checking the level in future.

If the clock is in beat and refuses to run, check for obvious things such as hands catching, weight lines fouling, pendulum rubbing on the case. If it still refuses, the clock may need servicing or setting up by a professional. 🛠️