

## Customer's Operations Manual for the LeCoultre Atmos Clock

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The Atmos clock, I just serviced, is a delicate instrument and should be treated as such. PLEASE read and follow the instructions given on the following pages BEFORE you start your Atmos clock.

When you receive your Atmos the pendulum should be locked and in its proper position, unless some shipper decided to use it for a football. It should remain locked until you have read the entire letter and are ready to set the Atmos clock in its permanent place. Please be sure that you do not place the clock in direct sunlight because temperature extremes are not good for any clock especially the Atmos.

### Locking the Balance (Pendulum)

In order to lock the pendulum yourself you must observe the pendulum rotation. The pendulum makes anywhere from a 360 to roughly a 540-degree swing. The proper time to lock the pendulum and/or set the time is when the pendulum reaches an extreme in the swing. An extreme is when the pendulum is just about to stop going in one direction and start in the opposite direction. You must use the locking lever in order to lock the pendulum. All locking levers must be pushed from left to right in order to lock the pendulum. This lever is usually located underneath the clock and is accessible from the front. On the caliber 540 and some of the older models, the lever is located just below the dial's number six (6). You must open the front glass door or remove the upper case in order to access the lever on these models. Some have an auxiliary locking cup-screw right underneath the pendulum. If yours is so equipped, you can access this from underneath the clock. You should use this locking screw only if the clock is being moved. It is extra protection and only found on some caliber 526's and 540's. On the domed anniversary model Atmos, the lever is located toward the rear and on the right side of the clock. The lever must be pushed from the back toward the front in a left to right or a clockwise swing.

Front glass doors can be opened in several ways. The most common is where there is a brass center knob at the top of the glass. Push down on this knob and gently pull toward yourself lifting the glass door off. Another has a small brass knob at the lower left part of the front glass door. Sometimes this little knob is tough to get a hold of and/or the door is difficult to open. In this case try using a pair of pliers in order to pull the door open and **don't** place so much pressure that the jaws crush the brass knob. Some older models have two (2) side pins, which must be pulled out (but not completely because they are designed not to be removed), and the entire brass and glass upper case slides off by lifting straight up. When removing or replacing this case please be VERY careful because you can accidentally hit the minute hand and break the minute shaft rendering the clock useless. On the anniversary models, the glass dome lifts straight off (up).

**A note on Atmos' with a front glass "door" and especially the caliber 526.** If you close the door "all the way" it will hit on the end of the 4<sup>th</sup> wheel, this wheel carries the minute hand. This can be seen because these doors most always have a dimple at that point which is caused by the door being closed too far. This dimple results from the glass hitting the end of the 4<sup>th</sup> wheel. It is a very poor design and I mention this to alert you not to close the door all the way because it may result in the clock stopping because of the extra friction. Try running your Atmos with the door closed first and if it stops then close it less and less until it continues to run.

### **Leveling**

Now that the pendulum is locked and the glass is off or opened, it is time to level the clock. Most every Atmos has a round "bull's eye" spirit level. The goal here is to center the air bubble in the center of the level. If yours does not have the bubble level, then the goal is to center the pendulum (See the last three paragraphs of this section). You do this by turning (moving) the two (2)-leveling feet or thumbscrews located at the sides of the front of the base of the clock. There is a third foot in the rear of the clock but it is permanent and not adjustable. On the anniversary model, there are three (3) adjustable feet, which can be raised or lowered by turning clockwise, or counter-clockwise respectively.

Your Atmos must be sturdy and not move or wobbly if you apply finger pressure any where on the case. The same should be true of the surface it's located on.

Some models do not have the spirit level. These Atmos' have the locking lever just below the dial's number six (6). Instead there is a brass point, cup, or prick punch hole at the center of the clock base. Sometimes there is an auxiliary locking cup-screw. If the auxiliary locking cup-screw is there it must be unscrewed before you can level the clock. You must first unscrew this until the cup edge is flush with the bottom plate. Here the leveling must be done with the pendulum in the unlocked position. Use the brass point, cup, or prick punch hole as the centering objective. The pendulum will have a brass point at its end. Using the same leveling method as above, first unlock the pendulum and then level the clock until the point of the pendulum is directly over either the brass point, prick punch, or the center of the locking cup, which is located on the base.

For Atmos' with the locking lever just under the dial's number 6, PLEASE observe the position of the roller on the balance. This roller is an aluminum cylinder is located just above and behind the dial's number 12. It rotates as the balance rotates. The importance here is the position of the roller before you do anything. I have it set at the proper position for starting your Atmos. It's not critical but it will tell you how far you have to push the balance after you have the clock level for this particular type of Atmos.

If your spirit level has lost most or all of its water or for future reference in case it does, then you will have to use the balance as the leveling objective. Here the leveling must be done with the pendulum in the unlocked position. About 3/4 of the way down the balance (pendulum) you will see a round brass disk. After this disk will be a hole in the frame that the balance passes through and then another round brass disk on the balance. Use either brass disk as you leveling objective and the upper disk is located on the balance just about where the bellows canister (housing) ends. Center this brass disk as best you can, using the hole below it as your centering objective. This is accomplished in the same way as mentioned above and this is exactly what is happening when you use the spirit level as your objective.

### **Setting the Time**

To set the time, please use the minute hand. You can turn it in either direction. Just be sure that the pendulum has or is about to reach an extreme in its swing or is properly locked, (please see the paragraph on locking the pendulum on page one). You do not have to stop the pendulum in order to set the time. You can move the hour hand in either direction but please use the same directions as above. This feature will help at daylight savings changes but please don't move it more than an hour in either direction. For time changes of more than an hour, please use the minute hand.

### **Starting**

If you have leveled the clock with the pendulum locked using the bubble level and the pendulum was at an extreme, then all you would have to do is unlock the pendulum. All Atmos' that I have worked on are shipped back with the pendulum at an extreme. There is a slight possibility that during shipping the pendulum had shifted and is no longer at an extreme but don't assume that. But if you leveled the clock by unlocking the pendulum, no bubble level or a bubble level that is dried out, then the pendulum must be placed back in the extreme. Do this by taking a pencil with a new eraser and start the clock by gently pushing the pendulum in either direction for about 180 degrees (1/2 of a complete turn) with the eraser end of the pencil and lock the pendulum. Now that the pendulum is properly locked (at an extreme), the time is set, the clock is level, and the glass is back on and/or the door is closed, it is time to start the clock.

On the caliber 540 and some older models, which have the locking lever located just below the six (6), you must first start the clock by opening the door and unlocking the pendulum, same as above, then close the door. Some calibers have an auxiliary locking cup-screw right underneath the pendulum. If yours is so equipped, you must unscrew this locking device flush before you start the clock. It is extra protection and only found on some caliber 526's and 540's.

If the above was done correctly, then all you have to do is set the time, unlock the pendulum slowly (right to left) and the clock will start and keep running.

But let's assume that the clock had stopped, or you stopped the Atmos at an improper moment. Again, assuming the time is set and the clock level, you take a pencil with a new eraser and start the clock by gently pushing the pendulum in either direction for about 180 degrees (1/2 of a complete turn) with the eraser end of the pencil, then close the door or place the cover back on.

### **Timing Adjustments**

Because of various scientific reasons, mostly different room temperature ranges, you can expect the Atmos to be off by as much as 30 seconds per day after a move or after service. So please be aware that you will have to adjust the timing for your "area". Most every Atmos has a speed adjustment located at the top of clock. This is a straight lever, which can be moved either left or right. Moving the lever to the left side stands for Slow or Retard and the right side stands for Fast or Advance. The scale has lines on it each representing ten (10) seconds per day. So the maximum you can adjust the clock either fast or slow is fifty (50) seconds per day.

On the newest models (caliber # 540 and the anniversary model) there is a sixty (60) second adjustable amount which is indicated by a plus (+) or a minus (-). The plus (+) would be to make the clock run faster.

Timing should be done at roughly the same time of day and the time recorded once you observe the "tick" or movement of the minute hand. Be sure to use the same timepiece each time when comparing the accuracy of your Atmos. Record the exact time the minute hand moved its 30-second tick and the direction that the balance was moving. Then at the same time the next day or next week or whatever, record the time using the same parameters and adjust according.

The hands must be moved to the correct time each time you make a timing adjustment.

## **Timing Adjustments - Continued**

Remember that the clock ticks once every 30 seconds and the adjustment scale is broken down to 10 second per DAY intervals. Don't get too obsessive because an Atmos will never keep perfect time but it should be accurate to within a minute a month and 30 seconds a month can be expected.

On models made prior to 1949 -1951, which are the Atmos II's, LeCoultre's first true production run, there is an adjustment knob located at the rear in the upper right side as you face the front of the clock. Some have the adjustment knob located in the front upper right. This knob also has "F"ast and "S"low indicators and you would turn the knob in the appropriate direction. From what I have been informed, each full turn represents 10 seconds per day but you'll have to experiment.

## **Trouble Shooting**

There is very little a "lay" person can do to trouble shoot an Atmos. One of the most important things you can do is make sure that the room temperature, where the Atmos is located, changes at least 4 degrees Fahrenheit in every 24 hour period.

There is one situation where perhaps you can save yourself the expense of another repair. The advice I'm about to give is for your information and I do NOT take any responsibility with what you do with it or its affect on the clock.

If the balance (pendulum) moves and the minute hand advances each complete rotation, then what's mentioned below will NOT apply. You only have to watch two rotations (swings) to be sure if the minute hand is advancing.

The fork will sometimes "over bank" even though it is designed not to. By over banking I mean that the fork is now somehow on the wrong side of the roller (pendulum). This can be seen because the roller will rest on one or the other side of the fork and not in the middle (this assumes that the clock has stopped on its own). In other words the pendulum is trying to swing in one direction but the fork will NOT let the roller pass. To correct this problem, gently push the pendulum (remember use the eraser end of a pencil) in the direction which is away from the fork. Just a few mm will do the trick because you just want to get the roller out of the way of the fork. Now gently push the fork in the same direction that you just pushed the pendulum. This places the fork on the correct side and allows the roller to pass through the middle of the fork. This action is how the pendulum gets its power in order to keep the clock running.

## **Case Care**

Most likely your Atmos case is made of brass, which is nickel-plated and then gold plated on top of that. Finally the case is lacquered. I have heard that the gold plating is three (3) microns thick, which I think means three (3) thousands of a millimeter thick. Now this is very thin and you can actually rub off the gold finish by scrubbing and using any household cleaner. So my advice is ALWAYS to use a terry or soft cloth and nothing but water. Buy yourself some deionized water and use it for only that purpose. Your steam iron will also last longer if you use deionized water.

Whenever you move the clock, even to dust, please be sure to use gloves and properly lock the pendulum (at an extreme). Finger acids and oils will tarnish the finish over time.

### **Storing and Shipping**

As far as packing the clock for either storage or shipping you should first lock the pendulum at an extreme. Then use bubble-wrap around the entire clock and place it in a box containing packing peanuts. Then take that completed box and place that inside a large box containing packing peanuts.

If you do ship the clock, I've not had any problem with any carrier using the above method. I also suggest insuring it for at least \$2,000.00.

### **Estimated Value**

There really is a lousy "used" market for Atmos'. That is because large corporations give most away as service awards. Most Atmos' go in the \$600.00 to \$2,200.00 range depending on the condition and the year made. Each Anniversary model would probably fetch around \$4,500.00. Most collectors want Atmos' with a serial number under 110,000, which places the year of manufacture fifty plus years ago. These usually fetch the higher price.

Recently though, the newer the Atmos the higher it sells for on eBay. My only logic is that the public hopes that the newer the Atmos is, then the less likely the need for repair or the less costly the repair. For the most part this is not the reality. This includes the 75th anniversary model because it's a caliber 540. The 50th anniversary model is a caliber 550.

The ironic thing is that the suggested retail of a new Atmos is around \$6,000.00.

I have a Web page to help determine the value of your Atmos at:

<http://www.atmosclock.us/value.html>

### **Serial Numbers**

The following is a break down of the caliber (model) numbers and the corresponding range of the Atmos serial numbers:

Caliber #	Serial # Range	Your Clock
540 & 560	700,000 – and up	
550	Special 50th Anniversary	
540	600,000 – 699,999	
526-5 & 528-6 & 528-8	107,000 - 599,999	
526-5 & 528-6 & 529 & 532	70,000 - 106,999	
519 & 522 & 529 & 532	60,000 - 69,999	
Atmos II & 519 & 529	6,000 - 59,999	

The serial numbers are located on top of the movement next to the fast-slow adjustment. On some early caliber 519's and the Atmos II's the serial number is located on the bottom of the movement and you can see it through the front of the case.

This manual can be found on the Internet at:

<http://www.atmosclock.us/atmocare.html>

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### **Determining the Clock's Caliber (Model)**

First lock the balance using the lever on the bottom or the lever under the 6 on the dial. Please be sure to lock the balance at an extreme, which was detailed earlier. With the balance locked, look under the base of the clock and there you will find the caliber # stamped. This will be true for all calibers except the Atmos II and 519.

The Atmos II and 519 are identified by a low serial # (almost always under 60,000). If your clock has an adjustment lever at the top center, then it is a caliber 519. If the adjustment device is a turn knob, which can be either facing the front or back, then it is an Atmos II.

The caliber 540 has the added information in that the caliber # is on the front plate just above the number 6 on the dial.

### **Plaque Glue Removal**

If you want to remove the plaque and the residual glue, I have successfully used WD-40 for removing the glue. Just spray some on a clean dry lint free cloth and start rubbing. The WD-40 does not hurt the finish or the lacquer.

Another product for glue removal is called "Goo-Gone". I've not personally used it but I have heard that it works well.

### **Moving the Atmos**

When moving the Atmos, the balance should always be locked and the balance should be at an extreme. The reason is that the balance is poised (balanced) and moving the clock can "knock" it out of poise. There is a regulating clamp on the suspension spring. It is this clamp that moves up and down when you adjust the speed with the regulation lever or screw knob.

Moving the Atmos without locking the balance will cause the balance to shift abruptly and that can move the regulating clamp. This clamp must be at the center of the suspension spring and if it is moved by moving the clock then it CAN be knocked out from the center of the suspension and that will cause the balance to be out of poise.

This lack of balance poise will surely stop the clock from running because the balance will now be at an angle rather than straight. This can be so subtle that you cannot tell by observation, so please be sure to lock the balance at an extreme when you move the clock for whatever reason.

### **Final Words and Self-Interests**

There is a small wire, silvery in color, at the end of the suspension spring, which runs the total length of the pendulum. This thin wire comes up from the speed regulator on the top of the movement and sometimes touches the glass case at the very top of the case. NEVER under any circumstance remove or cut this suspension spring wire.

**Final Words and Self-Interests - Continued**

You see when the clock needs service the poise (balance) of the pendulum MUST be checked and therefore the pendulum and suspension spring, are removed. This "extra" portion of the suspension allows the repair person to place the pendulum back into the clock. Without this extra portion, a new suspension spring would have to be used and therefore cost you more money.

The bellows was hand scribed with the exact date of manufacture at the Swiss factory.

Well that's all I can think of at the moment so enjoy your Atmos and take care of it and I'm sure it will give you many, many years of service. One last thing, the Atmos factory in Switzerland recommends complete service at twenty (20) year intervals. My philosophy is that if the clock is running and keeping good time then there is no need of maintenance of any kind, just enjoy the clock.

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An Atmos and Anniversary Clock Instructor!

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