

## Ollie Baker Mainspring Winder Procedures (page 1 of 4)

While working with the mainspring winder, **always** wear safety glasses and gloves. Make sure the mainspring winder is **tightly** held in place by the vise.

If you are dealing with a hole end mainspring, which is inside a barrel, you must first remove the barrel cover. Hold the barrel securely in one hand with barrel teeth above your thumb and forefinger. Take a brass, nylon, or fiber head hammer and smack the arbor pivot smartly and the cover will “pop” off.

Select the tightest fitting let down key from the class’s set, which is to be used to wind and unwind the mainspring. We **most always** use the original mainspring arbor while using our winder. There are some cases where the square winding surface faces away from the closed end of the barrel. Seth thomas has a few like this and in this case you must use your own winding arbor. Steal one from a junk clock or pick one up at a MART or swap meet and file it for the specific purpose of removing these rare barrel arrangements.

Next select a retaining sleeve from the class’s set and that sleeve should take the space of the inside diameter of the barrel to the tune of 90% to 75%. If it’s above 90% then you will have trouble “getting past” the barrel hook and if it’s below 75% you may not be able to wind the mainspring small enough so that the sleeve can capture the mainspring.

Place the let down key you have chosen into the head stock of the winder. Make **sure** that it is as deep as possible in the headstock. Then place the barrel sleeve you have chosen into and around the headstock, making sure that the “cut out” of the sleeve faces the tailstock.

Next place the mainspring arbor into the let down key, the arbor **must** still be attached to the mainspring and **all the way** through the barrel. Slide the tailstock to the arbor’s pivot, and be **sure** it fits snugly and then tighten the tailstock using the plastic key on the tailstock.

Hold the mainspring barrel with your left, gloved hand, and hold it **tightly**. This is because your hand will be taking all the force of the mainspring as you wind it in the winder. Make **sure** that you have set the headstock click in the direction that will wind the mainspring.

Wind the mainspring enough so that you can fit the sleeve around the mainspring. This is usually fairly close to full wind, so again please be **sure** that you have a hold of the barrel **tightly**. The sleeve **must** be inserted into the barrel with the “cut out” **surrounding** the barrel’s hook. Make **sure** that the sleeve is as deep as possible in the mainspring barrel. Try and leave at least the entire hole end of the mainspring exposed because this will greatly help when it is time to wind the mainspring in order to remove the barrel.

Once the sleeve is properly inside the barrel, then reverse the click on the headstock. A slight move of the headstock’s handle, in the winding direction, will “throw” the click so that it will reverse direction and allow you to **unwind** the mainspring into the sleeve. Here be **very careful** because your left hand will have the total force of the mainspring and your right hand will also have the same force of the mainspring. Please do the unwinding **slowly** and the control is, in effect, in your **hands**.

When the power is completely off the spring winder let go of the headstock’s handle to make sure that all power is off the spring. Once done, you may remove your left hand from the barrel and **not** before.

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Remove the barrel from the winder and “complete” the capturing process by turning both the sleeve and barrel in opposite directions. Please make **sure** that the sleeve is moved in the direction of the barrel hook’s opening. This will force the mainspring off the barrel hook and complete the capture process. By gently twisting the barrel it should easily be separated from the mainspring leaving you with a captured mainspring in one hand and an empty barrel in the other.

Place the captured mainspring and arbor back into the winder, so that you can remove the sleeve. This is done by placing one of the winder hooks, which are located on the winder’s bed, into the hole end of the mainspring, which should be protruding from the sleeve from our initial “capturing” procedure.

Start to wind the mainspring and while doing so make absolutely **sure** that the “bed hook” is **securely** inside the hole end of the mainspring. It is this hook which will now have all the power of the mainspring. Start winding the mainspring, as before, and at about the 50% to 75% of the winding process the sleeve should be removable.

Once the sleeve is removed, then reverse the headstock’s click, as before, and **slowly** unwind the mainspring. Once the mainspring is unwound then you will have the mainspring free and ready for cleaning and lubrication. Remove the mainspring from the winder.

Remove the spring winder from the vise. Place a large screw driver through the mainspring at its hole end. Place the mainspring horizontally on the vice by inserting the screwdriver into the vise. Make **sure** that the screwdriver is held **tightly** in the vise.

Using another screwdriver, place it through the center of the mainspring. This is the end which fits around the winding arbor. “Walk” the mainspring away from the vise. This will straighten the mainspring and then you clean and lubricate “as you go”. Using this method will make you **responsible** for the entire mainspring’s force because one hand or the other will have its total power as you stretch the mainspring. After the cleaning and lubrication, walk the spring is back to a “relaxed” state, remove the screwdriver and spring from the vise.

Another method uses a bungee cord. Once the mainspring is “stretched” you can use the bungee cord in order to hook the mainspring’s center. Please make **sure** that the bungee cord is place **securely** at both the mainspring’s center and whatever you use to hook the other end of the bungee. This “other” end **must** be a secure and unmovable surface.

Wipe the stretched mainspring with a rag saturated with kerosene, removing the old oil. Wipe the spring with 3/0 synthetic steel wool (non-woven pad) or similar product like a scrubby pad. Wipe the spring with a dry clean cloth. Wipe the spring again with the rag saturated with kerosene in order to remove any fibers from the 3/0 and residual dirt. Wipe the spring with a dry clean cloth yet again. Place oil on the spring by wiping the spring with a rag saturated with mainspring lubricant. Both the kerosene and lubricant soaked rags should be used only for this specific purpose.

If you are using the bungee, **carefully** remove the bungee cord from the bungee cord holder making sure you have complete control of the spring by holding the bungee cord. **Slowly** walk the spring into the center. Once the spring is back to a “relaxed” state, remove the screwdriver and spring from the vise.

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Place the mainspring winder back into the vise, **securely**. Insert the arbor back into the mainspring's center. Make **sure** that the hook on the arbor holds the inner hole of the mainspring **securely**. Place the sleeve back onto the headstock. Place the let down key back into the head stock, assuming you removed it, and **secure** the mainspring's arbor into the let down. Hook the hole end of the mainspring onto the a winders base hook. Bring the tailstock back into contact with the arbor's pivot and lock the tailstock.

Wind the mainspring until you can fit the sleeve around the mainspring. The "trick" here is to make **sure** the sleeve's "cut-out" fits under the hook of the winders bed. You do this by pulling the hook slightly away from the spring, while sliding the sleeve cut-out under that hook. Once the sleeve is in place please be **sure** that the mainspring extends at least 1/8" to 1/4" more than the end of the sleeve. This is to make sure that the mainspring "bottoms-out" inside the mainspring's barrel.

Once the mainspring is captured inside the sleeve, then remove the mainspring from the winder and insert it into the barrel. This is somewhat tricky because you **must** manually "flatten" the exposed hole end of the mainspring in order to slide it into the barrel. Make sure that the hole end is placed **before** the barrel's hook. This aids in hooking the mainspring onto the barrel.

Use a twisting motion turning the captured mainspring into the barrel's hook and twisting the barrel in the opposite direction. This will secure the hole end of the mainspring onto the barrel's hook.

Once accomplished, place the "mainspring filled" barrel back onto the winder and use a gloved hand to hold the barrel as you wind the mainspring. This winding is so that you can remove the sleeve from the barrel and usually happen anywhere from 50% to 75% of the winding.

Once the sleeve is removed, wind the spring, now inside and hooked in the barrel, three times fully. Again a gloved hand is a **must**. Of course you must let the power down each time. This three time winding, does two things. First, it tests the mainsprings durability. You would rather have it break now than in the clock where it can cause damage to parts and owners. Second, it allows the lubricant to spread evenly around the mainspring.

The last step is to replace the barrel cap. There are several methods for doing this but my favorite is to use a vise with smooth "jaws". Place the cap back on the opening in the barrel and "work" the barrel inside the jaws tightening the vise as you go. A gently "squeeze" here and there as you turn the barrel in one direction will place the cap firmly on.

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