

Epping Forest Horology Club
**Lesson 1: Introduction to
The Watch Restoration Course**



L 1

1

About the Course – Year 1

- Entry Level assuming no prior knowledge
- Each week 30 – 45 minutes of theory followed by a practise session
- Copies of the presentations will be emailed and it would be a good idea to print a copy take notes
- Common Mechanical Movements
- Tools, techniques and workshop practice
- Pocket Watches are our teaching tool as the techniques are the same as wrist watches & they illustrate the history and development of our craft

L 1

2

Topics we will be covering

- Names and actions of all parts a watch.
- Opening pocket watch cases.
- Removal & correct handling of a movement.
- Disassembly & safe handling of components
- The Lever Escapement.
- The Cylinder Escapement.
- The American Negative Set movement
- Train calculations and use of watch timers

L 1

3

- Keyless-work functions and the various types.
- Removing, fitting & replacing mainsprings.
- Adjusting balance springs.
- Watch Jewels
- Basic workshop skills (benchwork)
- Watchmakers staking set.
- Basic Servicing (Cleaning and Oiling)
- Basic fault finding.
- The Watchmakers Lathe.
- Construction of a project piece.

L 1

4

The first watch we will be working on.



This will give you a look into the modern world of watch repairing.

This watch will be provided as part of the course and retails at £128 and it's yours to keep when you complete the course.

Supplied by Royal London, part of the Condors Group.

The movement is a copy of the ETA 6497 and was originally a Unitas design of 1947

Suggestion:

If you are thinking of gaining a professional qualification in the future, may we recommend that you bring a camera to document your progress, and also make your own notes, which you may add to a portfolio in the future.



L 1

5

Your Second Watch. Again you need to find:

This is a cylinder bar movement. This can be key wound or keyless.

This will be your first look at historical horology.

Please only bring in watches that are in working order or just in need of cleaning or minor adjustment. **No wrecks,** as we only have one lecturer and limited time in each lesson.



L 1

6

The Third watch you will be working on. You need to obtain

- This needs to have an American $\frac{3}{4}$ plate movement with lever escapement and negative-set Keyless work.
- 7-jewel movements are in plentiful supply.
- Makes to look for are Elgin & Waltham.



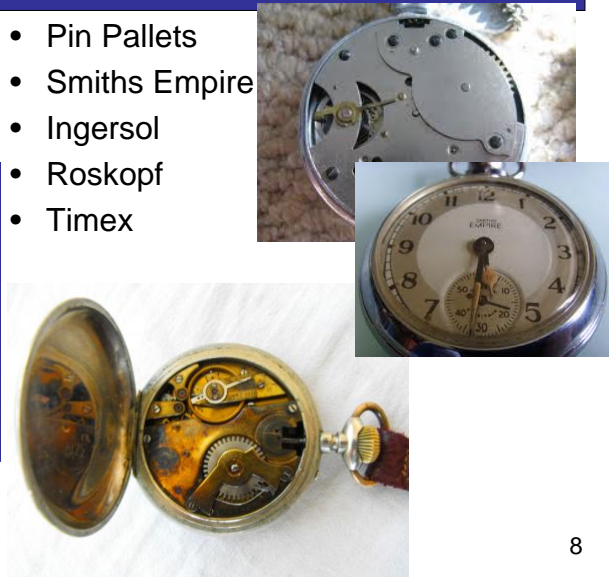
No full Plate watches

L 1

Do NOT bring in:-

- Pin Pallets
- Smiths Empire
- Ingersol
- Roskopf
- Timex

These watches are really hard for beginners to work on as there is very little quality to them and are very tricky to put back together. Work on one of these and you will soon hate watch repairing!



L 1

8

Don't panic

- If you can't find a watch to work on, or have limited funds, we can provide you with a club watch. But be warned that these have been in the hands of **other students!**
- We also have hand tools that can be borrowed in the lesson, but there are very limited supplies.



L 1

9

Your Fourth Watch

This watch will be a fusee watch and this will be the last watch we will be working on. Again you will have to provide this. As with all of these watches, it doesn't matter if they don't have cases or dials and all 3 movements are readily available at clock/watch fairs and E-Bay.

Again we must stress that each should be in good order and just need cleaning to get them working as the lecturer can only (on average) spend 5-8 minutes per student in each practical lesson to keep things fair.



L 1

10

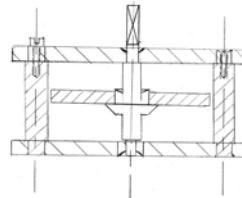
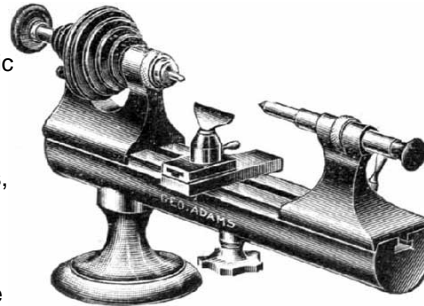
The last part of the course

This will be 5 to 7 lessons on very basic watch and tool making skills and using the watchmakers lathe.

There will also be a course apprentice piece that will run over the next 3 years, not just for the first year.

This will involve making two small pillars, two screws and the plates in the image on the bottom left. This will then take us to the end of the year.

There maybe some free lessons at the end of each term and it will be at the discretion of the lecturer for you to bring in your own project or just catch up with the rest of the group if you fall behind.



L 1

11

Tools needed to begin

- Watchmakers screwdrivers. We recommend the type with removable blades. 5 is enough!
- Loupes (single 3x & double 12x) or alternative.
- Tweezers No 2 or 3 Dumont or equivalent.
- Watchmakers case knife.
- Pin vice (preferably small *and* medium)
- Parts tray large enough for a pocket watch movement.
- Movement holder or rings.
- White cotton apron (provided).
- Tool box



L 1

12

Tools needed as you progress

- Oiling kit (oils, oil pots, oilers)
- Dumont No 5 (assembly) tweezers
- Rodico one touch.
- Watch papers or finger cots
- Pliers, side-cutters, end-cutters
- Puffer
- Needle files
- Oil stone or India stone.
- Graver (2.5mm square)
- Pivot File
- Hand removers
- Peg wood
- Staking block or set
- Watchmakers hammer
- L 1 Case holder



13

Optics – a personal choice

- If you can see it, you can do it.
- Loupe or Eyeglass
 - The least expensive option, the choice of most professionals, 5x magnification widely preferred
- Surgeons Glasses
 - Stereo Vision, Greater Working Distance
- Stereo Zoom Microscope
 - Best Image, Least convenient, Most expensive

L 1

14

Today's practical

- Remove both inner bezels
- Remove winding stem (see following note)
- Remove all three hands
- Ease movement out of case (HOLD EDGE)
- Support dial down in a Movement Holder
- Remove plastic case ring (2 screws)
- Turn dial foot screws to release dial
- Dial is now loose; slowly invert & ease movement away from dial. Lay on bench.

L 1

15

Bolt Screw

Turn anticlockwise **ONE** turn to release the stem and crown: take care not to lose the little tube that is a slip fit onto the stem



NOTE:
Always choose a screwdriver the same width as the slot in the screw

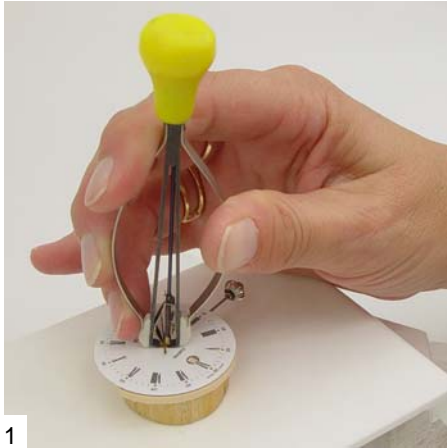
ALSO NOTE:
Movement is retained in the case by the bezel, as in many modern wrist watches

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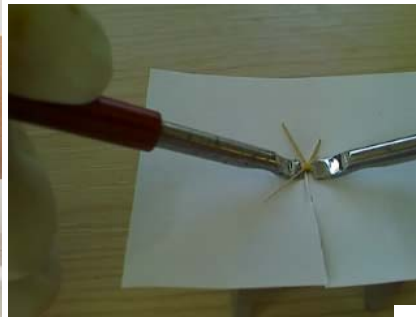
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Removing Hands

- Specialist tool. Dial Protector



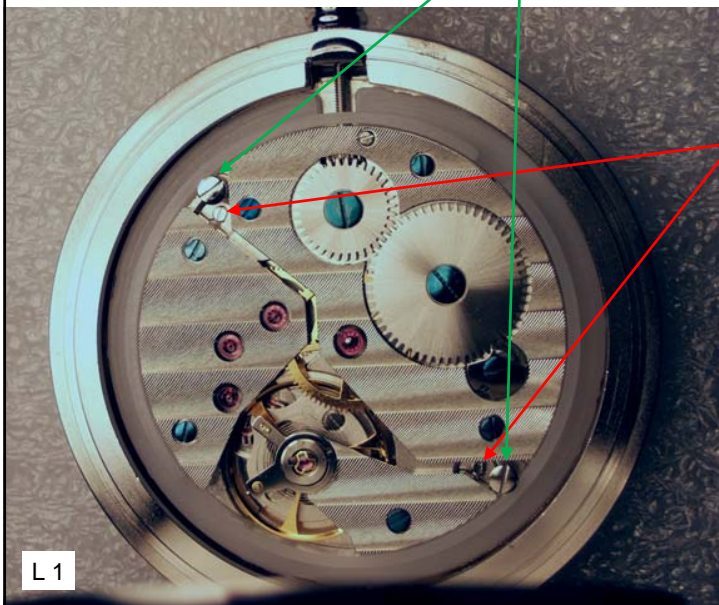
L 1



17

Removing Dial

- Screws holding Plastic case ring



- Screws holding Dial

L 1

18

Today's practical

Items in red only if you have time

- Remove both inner bezels
- Remove winding stem (see following note)
- Remove all three hands
- Ease movement out of case (HOLD EDGE)
- Support dial down in a Movement Holder
- Remove plastic case ring (2 screws)
- Turn dial foot screws to release dial
- Dial is now loose; slowly invert & ease movement away from dial. Lay on bench.

L 1

19

Off you go!



L 1

20