

“CLOCK REPAIR 1 and 2” beginner course outline

By: John Tope

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1. INTRODUCTION:

- What will be learned in the video:
- Curing common clock movement ailments.
- Proper way to handle the minute and hour hands.
- Setting the time.
 - How much to wind.
 - Common key size.
 - Timing speed keys.
 - Adjusting the pendulum bob (if adjustable)

2. SOME TOOLS NEEDED FOR CLOCK REPAIR

- How to improvise and make some tools.
- Where to find tools.
- Types of tools to use.

3. REMOVAL OF THE HANDS.

- Common problems with clock hands.
- By hand or using a hand removal tool.

4. REMOVAL OF THE MOVEMENT FROM THE CASE.

5. INSPECTING THE MOVEMENT.

- Use of assembly post stands.
 - Time train viewed in detail.
 - Strike train viewed in detail and how it strikes.

6. MAINSPRING CLAMPS.

- Let down the power.
 - Let down keys.

7. DISASSEMBLE THE ENTIRE MOVEMENT.

- Looking at the time and strike sides.
 - Identify time and strike parts.
 - Examination of parts.
 - Set aside parts not to be cleaned in solution.

8. USE OF A SPRING WINDER.

- Mainspring clamps.
- Removal of the mainspring from the wheel.
- Removal techniques.

9. THE CLEANING PROCESS FOR MAINSPRINGS.

- Materials and tools needed.
- Cleaning fluids used.
- Other materials used in cleaning.
- Demonstration of cleaning process.

10. CLEANING FLUIDS USED FOR CLEANING THE MOVEMENT.

- Directions for the mix to be used.

11. TYPES OF CONTAINERS NEEDED FOR MOVEMENT CLEANING.

12. MIXING THE CLEANING SOLUTION.

13. ARRANGE THE PARTS.

Strainers and equipment.

-Cleaning steps.

14. DRYING THE MOVEMENT PARTS.

-Building a dryer box.

—Tools needed for construction.

15. MORE CLOCK CLEANING FORMULAS.

16. ULTRA SONIC CLEANERS.

-Other cleaning tips.

17. EXAMINING CLEANED PARTS

18. POLISHING THE PIVOTS.

-Demonstration

— 2 methods that can be used to polish pivots.

-Tools to be used.

How to make the tools.

-Polishing sticks.

—How to make them.

—Different sizes.

19. DEMONSTRATION OF THE TIME TRAIN ASSEMBLY.

-Examine shake.

20. DEMONSTRATION OF THE STRIKE TRAIN ASSEMBLY.

-Demonstrate the strike train.

21. ASSEMBLY OF THE MAINSPRINGS.

-Drawing for the fit of the Mainspring back on arbor pin.

-Use of C clamps on the spring winder.

22. ASSEMBLE THE ENTIRE MOVEMENT.

-Attachment of wire springs explained.

-Purpose of the wire springs.

23. CLOCK TEST STAND SET UP.

-Demonstration of test stand and it's functions.

—Ways of mounting and leveling the movement.

—Hook up beat amplifier and how to use it.

——View time and escapement.

——View striking and count lever, lifting levers, locking cam and warning pin in action and detail.

———Demonstration of correction to warning pin wheel location.

23b. TIME TRAIN ADJUSTMENTS.

———Fly wheel adjustments.

———Check gap and adjust crutch loop.

24. OIL FOR THE CLOCK.

-Where to buy it.

-Oilers.

-Where to oil.

-How much to oil.

—Oil points for both sides of the movement.

25. OILING THE ESCAPEMENT.

-How and where to oil.

-Variations in escapements.

26. CLEANING THE CASE.

-Materials needed.

- Removal of ornamentation.
- Demonstration of techniques.
- Tools used in the process.
- Clean bezel.
- Clean glass.
- Repair of clock face to the bezel.
- Materials used in repair.
- Demonstration of repair.

27. STRIKE HAMMER LEATHER REPLACEMENT

- Sound example.
- Tools needed.
- Where to buy them.
- Leather: Type and where to get it.
- Removal of remaining leather.
- Tools needed and technique.
- The new leather.
- Sizing and refitting.
- Test strike sound.

28. RETURNING THE MOVEMENT TO THE CLOCK CASE

- Demonstration of the screw holding screwdriver.
- Seating the screw threads.
- Replacing the hands.
- Set the time and check the strike.
- Adjusting the strike hammer.

29. SETTING THE CLOCK

- Using the Timetrax machine.
- Setting it by ear.
- Using the beat amplifier.

30. SETTING THE TIMING

- Set beat and timing in the case and not on the stand.
- The case level and set it based on the case.
- Demonstration tool for beat adjustment.
- How to make the beat adjustment tool.
- What to listen to when adjusting.
- Use of level to check surfaces.

31. 10 MORE TIPS

- Suggested readings and where to find books.

32. Join the NAWCC at www.nawcc.org

33. Reason for doing the video.

THE END

Clock Glossary

Adamantine: Early celluloid material with a marbled appearance applied over clock case wood surfaces.

Arbor: The steel shaft where the wheels and pinions run on. The wheels and pinions are pressed on to the arbor.

Backboard: The back part of the clock case where there is access to the movement and frequently where a manufacturer's label can be found.

Beat: The ticking sound that you hear from a running clock movement. A regular consistent beat is referred to as "in beat". An irregular ticking sound is referred to as "out of beat".

Barrel: A cylindrical housing container usually of brass that contains a mainspring.

Bezel: The cover (glass) held by metal or wood in front of the clock dial.

Bim Bam Chime: A two-tone style strike on the hour and half hour.

Bob: The weight (generally round) at the end or bottom of the pendulum.

Bracket clock: The British version of the shelf or mantel clock that stands on a bracket shelf attached to the wall.

Brass works: Clock movements made of brass are referred to as brass works.

Burnishing: Bringing the metal surface to a bright finish by compressing the surface steel using friction to clear all scratches and surface marks.

Cam: A round disk or cylinder of irregular shape that is contacted by a lever that follows the contour of the disc or cylinder.

Case: The housing for the clock movement or works of the clock.

Chime: A clock mechanism that play a series of notes on the hour, half hour and often quarter hour.

Escapement: The mechanism of the clock movement that controls the pendulum swing.

Escutcheon: The trim ring around the winding hole. Usually made of brass.

End shake: The amount of free movement of the arbor when the pivot of the arbor is placed into the movement plate.

Fly: The arbor that has a flat winged fan attached to it for regulating the speed of the clock strike or chime. Also known as the governor.

Going train: Series of gears including the escape wheel that is responsible for time keeping. Also known as time keeping train. See below - "Train"

Grandfather clock: Originally referred to as a tall case clock. The name was attributed to for the use of describing a tall case clock from the song "My Grandfather's Clock" written in 1876 by: Henry Clay Work.

Mantel clock: A clock intended to be placed on a mantel or shelf. Also known as a shelf clock.

Kitchen clock: Clocks popular from the late 1800's to early 1900's to be used in the kitchen. Usually made of oak and frequently included an alarm mechanism.

Oil sink: The depression in the movement plate around the pivot hole. Used to hold oil in place without spreading over the movement plate.

Open escapement: Clocks where the escapement parts are located in front of the clock dial. Usually consisting of the escape wheel and pallets. Also known as a visible or outside escapement.

Quarter hour striking clock: A clock the strikes or chimes every 15 minutes.

Pivot: Either end of the arbor that is machined to a specific diameter to pass through a hole in the movement plate.

Regulator clock: These were originally very high precision clocks from which all other clocks were set. Later the term was very loosely applied to clocks to give the appearance or impression of a high precision clock.

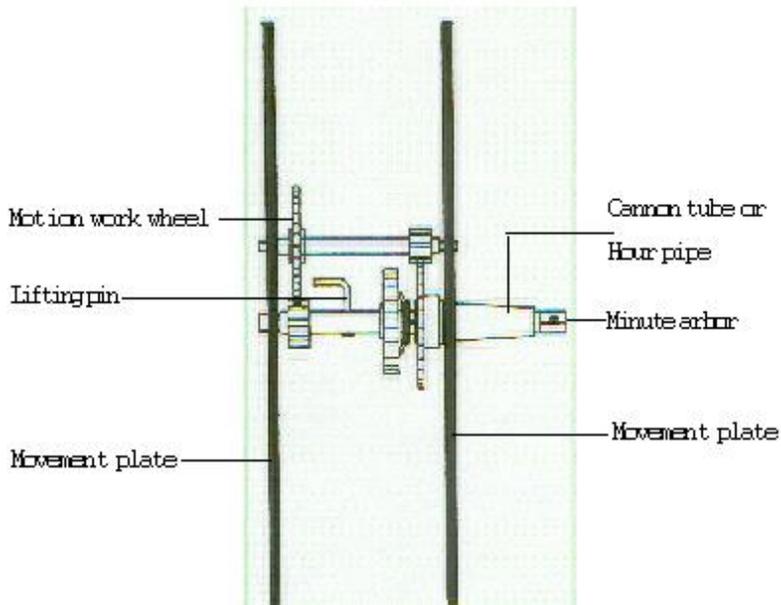
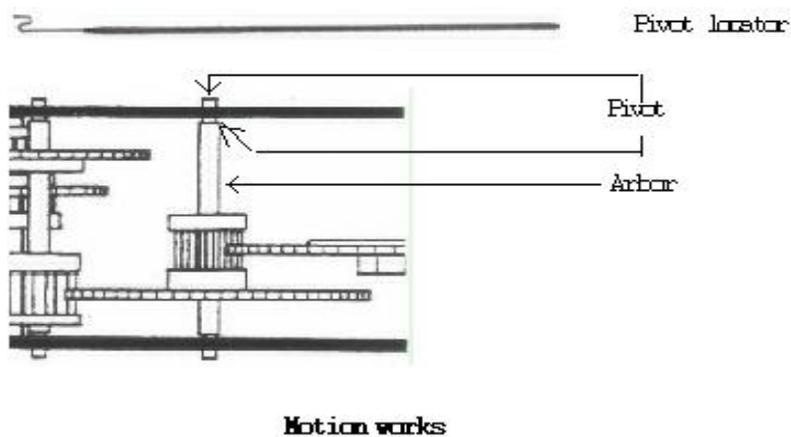
Striking clock: A clock mechanism using a single tone to announce the hour by counting out the number hours with a series of repeated single tones.

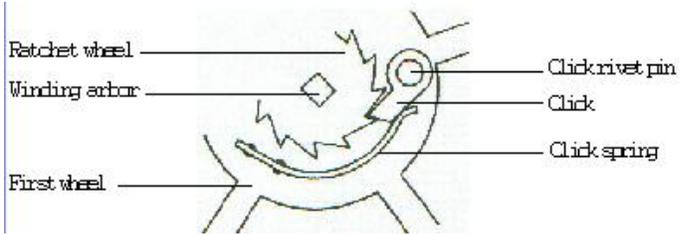
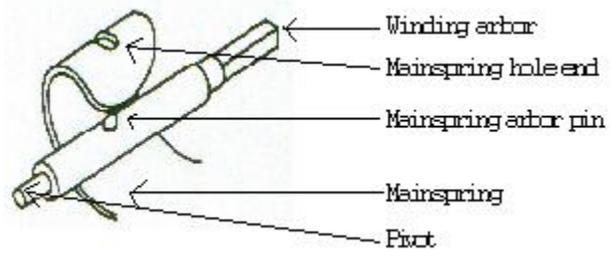
Strike Train: The series of gears in a clock movement that are responsible for the time striking mechanism. See below - "Train"

Suspension spring: The steel strip that attaches between the pendulum rod and the movement.

Tambour clock: A clock case that is the shape of Napoleon's military hat. Also known as a camelback or humpback clock. Round in the middle around the dial, and tapering flat on either side.

Train: A series of gears in the movement that transfer power to either the time or the strike.





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