

Chapter 92 Clock Repair Workshops: Chapter 92 conducts a series of hands on clock repair workshops. They are “Basic Clock Repairs, Metalworking & Lathe Skills”, “Repair of a Time & Strike Movement”, “Repair & Replacement of a Strip recoil Escapement”, “Repair of a Time & Strike Rack & Snail Movement”. We do the workshops on a weekend (Saturday & Sunday). Currently, the cost is \$90 for each two day weekend workshop. A minimum number of participants are required for each workshop. For information, please contact Mark at mloates@rogers.com

Basic Clock Repairs, Metalworking & Lathe Skills: These are a series of three, two day workshops that covers some of the common repairs that are likely to be encountered in clock repairing. Please note that the “Basic Clock Repairs, Metalworking & Lathe Skills” workshops are for “skills development” and not participant’s clock repair. Some of the items that will be covered are pivot straightening and replacement, teeth replacement in wheels and barrels, lantern pinion repair, softening/hardening/annealing steel, bluing of steel, etc. These workshops are the foundation for the other workshops.

- Workshop 1
 - Repair lantern pinion
 - Basic lathe operation
 - Straighten arbors
 - Correct wheel wobble
 - Straighten & Polish pivots
 - Replacing bushings by hand and using bushing tool
- Workshop 2
 - Make click rivet and repair click
 - Make & replace barrel hook
 - Soften the end of mainspring & punch a new hole
 - Replace pivot
 - Replace a clock wheel tooth
- Workshop 3
 - Straighten escape wheel teeth and check concentricity
 - Reverse worn main wheel
 - Replace a barrel tooth
 - Use of depthing tool to correct incorrectly placed bushings

Repair of a Time & Strike Movement: This is a series of two, two day workshops that covers the repair of a Time & Strike movement with open mainsprings that is typically found in Kitchen and some Mantel clocks. These workshops build on the repair techniques that were learned in the “Basic Clock Repairs, Metalworking & Lathe Skills” workshops. For these workshops, the participant will be repairing their own movement. The required movement for this workshop is to have open mainsprings and a recoil escapement on an outside plate (movements that have dead-beat escapements or pallets that are between the plates are not acceptable). The recoil escapement on an outside plate is required so the same movement can be used for the “Repair & Replacement of a Strip recoil Escapement” workshop.

- Workshop 1
 - Identifying the movement parts
 - Safe movement disassembly
 - Clean movement by hand & with ultrasonic cleaner

- Clean mainsprings
- Repair movement based on material covered in “Basic Clock Repairs, Metalworking & Lathe Skills” workshop. (This will spread over into Workshop 2)
 - Straighten, replace & polish pivots
 - Install replacement bushings by hand and using bushing tool
 - Inspect main wheels for wear – reverse if required
 - Repair clicks
 - Correct lifting lever problems
 - Repair lever return springs
 - Repair/adjust slip collar assembly on centre shaft
 - Repair and adjust escapement components
- Workshop 2
 - Complete the repair of the movement that was started in Workshop 1
 - Practice movement assembly – time & strike trains
 - Count time train wheels & pinions to determine beats per hour
 - Final movement assembly
 - Time train trouble shoot
 - Strike train set-up & adjustment & trouble shoot
 - Oil movement
 - Adjust beat
 - Use clock timer to regulate
- **Repair & Replacement of a Strip Recoil Escapement:** This is a two day workshop that covers the repair and replacement of strip recoil escapement and components that are typically found in open spring clocks. This workshop builds on the repair techniques that were learned in the “Basic Clock Repairs, Metalworking & Lathe Skills” and the “Repair of a Time & Strike Movement” workshops. For this workshop, the participant will be repairing their own movement. The required movement for this workshop is to have open mainsprings and a recoil escapement on an outside plate (movements that have dead-beat escapements or pallets that are between the plates are not acceptable). The movement must have been recently cleaned, repaired, oiled and running. The escape wheel must have been checked for bent teeth and concentricity and repaired if required. The escape wheel must have been bushed if required.
- Workshop
 - Check escape wheel for bent teeth. Check escape wheel bushing.
 - Restore the existing strip recoil pallet assembly. Repair worn pallet faces, worn saddle and crutch.
 - Adjust the existing escapement:
 - Strip pallet adjustment
 - Adjust drop
 - Make a replacement strip recoil pallet assembly using “escape wheel tooth span” method
 - Discussion on design of strip recoil pallet using “escape wheel tooth span” and crutch length
 - Shape, polish, harden and temper pallets
 - Test completed strip recoil pallet assembly in clock movement
 - Discuss escape wheel/pallet replacement and changing beats per hour/pendulum length

Repair of a Time & Strike Rack & Snail Movement: This is a series of two, two day workshops that covers the repair of a Time & Strike Rack & Snail movement with spring barrels. These

workshops build on the repair techniques that were learned in the “Basic Clock Repairs, Metalworking & Lathe Skills” workshops. For these workshops, the participant will be repairing their own movement. The required movement for this workshop is to have spring barrels, rack & snail strike and a pendulum (movements that have balance wheel escapements are not acceptable).

- Workshop 1
 - Identifying the movement parts
 - Safe movement disassembly
 - Clean movement by hand & with ultrasonic cleaner
 - Remove mainsprings from barrels and clean mainsprings
 - Repair movement based on material covered in “Basic Clock Repairs, Metalworking & Lathe Skills” workshop. (This will spread over into Workshop 2)
 - Straighten, replace & polish pivots including barrel arbors
 - Straighten and replace teeth in wheels and in spring barrels
 - Repair mainspring end holes
 - Install replacement bushings by hand and using bushing tool
 - Install bushings in barrels if required.
 - Calculate length and thickness of mainspring for the barrel
 - Install mainsprings in barrels
 - Repair clicks
 - Repair/adjust slip collar assembly on centre shaft
 - Repair and adjust escapement components

- Workshop 2
 - Complete the repair of the movement that was started in Workshop 1
 - Practice movement assembly – time & strike trains
 - Count time train wheels & pinions to determine beats per hour
 - Final movement assembly
 - Time train trouble shoot
 - Strike train set-up & adjustment & trouble shoot
 - Oil movement
 - Adjust beat
 - Use clock timer to regulate