STRETCHLEARN · WORKBOOK

Watch Repair Basics — Workbook

This workbook turns the course into bench time. Each section pairs with a course module and gives you identification drills, step logs, fit checks, and quality checklists to run on real watches at your own bench. Work through it with a proper toolkit and a few inexpensive practice watches in hand, and keep the templates open so each repair is recorded with the right battery codes, gaskets, and measured rates instead of guesses.

The Bench, Tools, and Opening a Case

Set up a clean workspace and drill safe, no-scratch case opening across all three back types.

Checklist: Bench and Toolkit Readiness

[ ] Daylight LED task lamp (5000-6500K) positioned to light the work without glare
[ ] Magnification ready: loupe and/or Optivisor headband (DA-5 or DA-7 plate)
[ ] Light-colored non-slip mat so dropped screws and parts stand out
[ ] Quality screwdriver set dressed square (e.g., 0.6-2.0 mm range)
[ ] Brass tweezers for cells plus fine steel tweezers for general work
[ ] Case knife, Jaxa-style wrench, spring bar tool, and dust blower on the mat
[ ] Rodico, pegwood, and a small parts tray within reach

Worksheet: Case Identification Card

For each practice watch, inspect the case back edge and dial before touching any tool, and fill in this card. Decide the correct opener and your reseal plan before you open it.

Watch make / model

_____

_____

Back type (snap / screw / screw-down / monocoque)

_____

_____

Evidence used (pry notch / wrench flats / continuous seam)

_____

_____

Water resistance marking (e.g., 50M / 5 ATM / none)

_____

_____

Crown type (push / screw-down)

_____

_____

Chosen opener

_____

_____

Reseal plan (reuse / new gasket / pressure-test / send out)

_____

_____

Exercise: Open and Reseal Three Case Types

Source three inexpensive practice watches, one snap-back, one screw-back, and one screw-down. Open each with the correct tool, capture and inspect the gasket, then close it again squarely. Inspect the case under a loupe before and after for any new marks.

• Where was the pry notch on the snap-back, and did your blade angle point away from your hand?

• Did your Jaxa wrench bits stay fully seated, or did any skip and risk chewing the notches?

• Did you introduce any new scratch, and if so, what would you change about your grip or angle?

Batteries, Stems, and Crowns

Log battery codes and AC resets, practice releasing and refitting stems, and size a bracelet to a precise fit.

Worksheet: Battery Service Log

Record every cell you change. Read the IEC code from the old cell or movement, confirm silver-oxide, and note whether an AC reset was needed to start the watch.

Watch make / model

Old cell IEC code (e.g., SR626SW)

Consumer cross-reference (e.g., 377)

Chemistry confirmed silver-oxide (yes/no)

Tweezers used (brass/plastic, not steel)

AC reset performed (yes/no)

Seconds hand started cleanly (yes/no)

Exercise: Release, Pull, and Refit a Stem

On a practice movement, identify the stem release type, pull the crown and stem, then refit it and cycle all positions. If the movement has a date, confirm the quickset works after refitting.

• Was the release a push-piece pad or a setting-lever screw, and how did you confirm before pulling?

• Did the crown click through all positions (wind, quickset, set) after refitting?

• If you had to cut a stem, how did you mark the length so the crown closed flush?

Exercise: Size a Link Bracelet

Size a metal bracelet to your own wrist (or a model's). Identify the link type, push pins only in the arrow direction over a tray, remove links evenly, and fine-tune with the clasp micro-adjustment. Keep all removed parts bagged with the watch.

• What link type was it (friction pin / pin-and-collar / screw), and how did that change your tool?

• Did you remove links evenly, and if odd, did you favor the 6 o'clock side?

• How much further could you dial in the fit using the clasp micro-adjustment holes?

Checklist: Stem and Crown Safety Check

[ ] Stem release type identified before any pulling
[ ] Setting-lever screw loosened only 1-2 turns, never fully removed
[ ] Crown matched by tube diameter, thread, and height if replaced
[ ] Stem cut a little long, test-fit, then trimmed to flush
[ ] All crown positions cycle: winding, quickset, time-setting
[ ] Keyless works parts accounted for, none lost to the bench

Crystals, Gaskets, and Sealing

Identify crystal materials, fit a replacement square, and restore sealing with fresh, greased gaskets.

Worksheet: Crystal Identification and Measurement

For each crystal you assess, identify the material by the field tests, then measure the case seat with a caliper (several readings around the circle) and record the profile you need to order.

Watch make / model

Material (acrylic / mineral / sapphire)

Field test used (warmth/sound/water bead)

Case seat diameter measured (mm)

Profile (flat / domed / high-dome)

Tension ring present (yes/no)

Decision (polish / replace)

Exercise: Press-Fit a Replacement Crystal

Remove the movement first, press or lift out the old crystal, clean the seat, fit a fresh gasket, and press in a new crystal (acrylic by lift, mineral/sapphire by press with a flat die). Verify square seating by the even contact ring before refitting the movement.

• Did you remove the movement before pressing, and why is that step non-negotiable?

• For mineral/sapphire, how did you choose a die that contacted the crystal and not the case?

• Looking across the crystal at a low angle, did it sit flush all around, or did one side sit proud?

Checklist: Reseal and Water-Resistance Checklist

[ ] Old case-back gasket removed and groove cleaned with pegwood
[ ] Replacement gasket matched by inner diameter and cross-section
[ ] Thin film of silicone grease applied, gasket seated with no twists
[ ] Crown-tube and crystal gaskets inspected and replaced if needed
[ ] Snap back pressed home with a flat die, or screw back hand-started then tightened
[ ] Case back sits flush all around
[ ] Stated water rating downgraded to splash-only if not pressure-tested

Inspecting and Servicing a Quartz Movement

Diagnose, demagnetize, lightly clean and oil a movement, then verify it keeps accurate time.

Worksheet: Quartz Diagnosis Worksheet

Work a non-running or poorly running quartz movement from cheapest cause to most expensive. Fill in each check and note what you found, so you do not skip to a movement swap prematurely.

Fresh battery installed and AC reset done (yes/no)

Gear train clear of hair/dust/grit (yes/no)

Corrosion from leaked cell present (yes/no)

Coil resistance reading (kilo-ohms or open)

Rotor/wheels turn freely with pegwood (yes/no)

Demagnetized (yes/no)

Likely cause / next step

Exercise: Spot-Clean, Oil, and Verify Rate

On a running movement, spot-clean the gear-train pivots with pegwood, apply light oil to the train pivots and a heavier grease to the keyless works using a correctly sized oiler, then verify rate against an atomic reference over several days.

• Did you keep all cleaning fluids away from the coil and circuit?

• Where did you place light oil versus heavier grease, and how big was each droplet?

• Over how many days did you measure, and what daily rate did you calculate?

Checklist: Final Quality Check Before Return

[ ] Seconds hand steps cleanly once per second with no stutter
[ ] Hands clear each other and the dial through a full 12-hour sweep
[ ] Date flips fully at midnight and quickset works (if fitted)
[ ] Dial and crystal free of dust, hair, and fingerprints under the loupe
[ ] Crown seats fully and clasp closes securely
[ ] Measured rate within spec (seconds per month for standard quartz)
[ ] Service date and work recorded for history

Your Action Plan

1. Assemble a starter kit: dressed screwdrivers, brass and steel tweezers, case knife, Jaxa wrench, spring bar tool, blower, Rodico, pegwood, and a parts tray.
2. Set up a clean, well-lit bench with magnification and a light mat, and demagnetize your tools.
3. Source three cheap practice watches (snap, screw, screw-down) and open and reseal each without a scratch.
4. Change a battery start to finish: read the IEC code, use brass tweezers, install silver-oxide, and perform an AC reset.

5. Release, pull, and refit a stem, then cut a replacement stem to length so a new crown closes flush.
6. Size a metal bracelet, removing links evenly and fine-tuning with the clasp micro-adjustment.
7. Identify a crystal's material, measure the case seat, and press-fit a replacement square and sealed.
8. Replace a case-back gasket with silicone grease and close the case evenly, downgrading the stated rating if you cannot pressure-test.
9. Diagnose a dead quartz movement from cheapest cause to most expensive, demagnetizing and spot-cleaning as needed.
10. Lightly oil a movement with the correct oils in the correct places, then verify rate against an atomic reference and run the final quality check.