



**AMERICAN WATCHMAKERS & CLOCKMAKERS INSTITUTE
HARRISON, OHIO**

Modern Mechanical Chronographs, Servicing & Adjusting
(Also a preparatory course for the CW21 exam)

- The purpose of this course is to teach the student all the basics of the modern mechanical chronographs that are most prevalent on today's market as well as to give the student a profound understanding of how chronograph watches operate.
- **Prerequisites:**
 1. It would be of extreme benefit for the student to have a minimum of three (3) years experience in manual and/or automatic watch repair.
 2. Ownership of the book *The Theory of Horology* is essential.
Must read chapter 11 of *The Theory of Horology*, prior to attending the course (and/or) attended the following AWCI Courses: Basic Watch Repair and/or Automatic Watch Repair
- **Calibers covered:**
 - ETA 7750 (cam operated chronograph)
 - Other calibers if time permits
- Duration of course: 5 days Monday – Thursday 8:00 am -5:00 pm Friday 8 to 3pm

I. Course objectives

The student will learn:

- The definitions and a brief history of the mechanical chronograph and its various components
- About the basic features and functions
- The basic differences between column wheel & cam chronographs
- Differences between vertical and horizontal clutch systems
- Systematic approach of disassembly & troubleshooting.
- Modern assembly procedures
- Preparing the barrel & winding the mainspring
- All chronograph adjustments
- Modern oiling procedures
- Etachron adjusting procedures
- Timing & Adjustments
- Fitting hands on chronograph watches
- Dialing & Casing

II. Essential materials for the student to bring

For **all** AWCI courses, AWCI will provide cleaning machines and solutions. Hand-tools should be provided by the student. Ownership of quality hand tools is an expectation of a **Professional Watchmaker**. The brand name Bergeon mentioned below is used to help you identify the tools from the most popular tool catalogs; you are welcome to choose a brand of your choice, as long as it is of equal or better quality.

Check with your supplier for the recommended hand tools or their equivalents.

Modern Mechanical Chronographs, Servicing & Adjusting TOOL LIST	
Description	Bergeon
1. Barrel Arbor Holder size 1.00 mm	30610 Diam. 1.00
2. Barrel closing tool	
3. Brush (small) or soft small dial brush	1300-6
4. Buff stick leather 6.0 mm wide with plexi-cover # 4056-6	1282-D 4056-6
5. Casing cushion	5394
6. Cloth (lint-free) Selvyt or Micro-fiber	
7. Dial plastic protection	6938
8. Dust-blower (rubber)	5733
9. ETACHRON regulator adjusting tool & removing tool #015595 & # 015600	6918 6919
10. File, Hand style 6" long #2 cut or #4 cut	
11. File Handle	
12. Finger cots	
13. Hands fitting tool (hand press or manual pushers)	7404
14. Knife with case opener	6403
15. Lever for hands (2.5 – 5.0 mm in width or similar)	30018
16. Loupe 5X or 4X	
17. Loupe 10X	
18. Movement holder (Slick/Bergeon/Horotec) (large)	4040
19. Oilers (plastic handle, spade tipped) <u>small sizes</u> Bergeon only (7013 preferred)	7013 or 30102
20. Oil cups, die-cast alloy, 4 separate cups (or more)	30180-A
21. Oiler (automatic No. 1A)	2718-1A
22. Pegwood, Ø 3 mm or Ø 4 mm	
23. Pithwood (circular wheels)	
24. Pithwood sticks (assorted sizes)	
25. Plexi-stick (clear style only)	6436
26. Presto tool No. 1 (for removing hands)	30636-1
27. Presto tool No. 3 (for CP driver wheel)	30636-3
28. Rodico or Rub-off	Rodico # 7033
29. Screwdrivers, with stand (Bergeon, Horotec, Vaucher, etc.)	
30. Tweezers, antimagnetic, No. 00 (for cap jewels)	

31. Tweezers, brass	1064AM
32. Tweezers, antimagnetic, No. 5	6671-5
33. Tweezers, antimagnetic, No. 3	6671-3
34. Tweezers for hands, type F (Fontax or Horotec) polished steel tips Horotec 12.301-F1 or 12.302-F1	