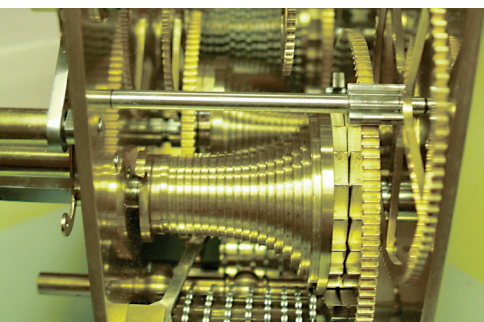




BRITISH  
HOROLOGICAL  
INSTITUTE



EXAMINATIONS  
RESULTS 2023



## Chief Examiner's Report 2023 Examinations

There has again been an increase in the uptake of the Distance Learning Course and Examinations, which is most encouraging. Additionally it was noted that those candidates who attended courses at Upton Hall performed well in the examinations. This booklet is produced to provide general feedback on the results of Units taken during this year's examinations, as it is the policy of the BHI not to give individual feedback. Well done to everyone who entered examinations this year, whether you passed or not, you still deserve the recognition.

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### D1 Theory of Clock and Watch Servicing.

Candidates submitted scripts for assessment. Eight achieved the required pass standard, of whom, three achieved a pass with merit. The average mark was 57%.

#### Section A. – Clocks and Clock Servicing.

##### Question 1 to Question 5 – Count wheel striking, train count and pendulum length calculations.

Good marks were scored in describing both the run to warning and the action after release, although some assumed the hoop wheel to turn the opposite way to that shown in the drawing provided. The train count calculation resulted in the correct 4860 beats per hour by about half the candidates. Hence, only these could have arrived at a correct pendulum length. However, errors in rearranging the standard formula or rounding errors were common and few achieved the correct 545mm.

#### Section B. Watches and Watch Servicing.

##### Question 6 to Question 9 - Incabloc shock settings and quartz watch testing.

Most knew the way the components of the incabloc move when a shock is received, but the role of the shoulder in relieving the pivot of stress was often omitted, as was the role of the shock spring in returning the components to their original positions. Questions on quartz testing were not well answered. Most were familiar with the tests and how to carry them out, but showed only a limited understanding of what faults might be the cause of readings higher or lower than normal.

#### Section C. Escapements.

##### Question 10 to Question 13 - Recoil escapement and fork and roller action in lever escapement.

The recoil escapement question was to explain the terms, drop, impulse, recoil, escaping arc and supplementary arc. The terms were clearly well understood by most candidates but there was confusion over whether drop includes tip thickness or not. The fork and roller action required a labelled drawing of a double roller assembly, which was well done by nearly all candidates. Descriptions of the going action and safety action were not done at all well with many showing a very limited understanding of the action of the escapement.

#### Section D. Workshop Technology.

##### Question 14 to Question 16 - Use of watchmaker's screwdrivers, tweezers, burnisher, hard and soft soldering, hardening and tempering.

Descriptions of the tools and their use were well answered and achieved full marks for all but a few candidates. The differences between hard and soft solders and their constituent metals were not well known to most candidates and only a few good answers were seen. The hardening and tempering process was better known but not all were familiar with the degree of hardness required for different components.

#### Section E. Short Answer Questions – 20 Questions

Most questions were well answered, and many achieved good marks on this section. The least well answered questions were one concerning fusee stop work, and one concerning circular error.

## D2 Constructing Clock Components.

Candidates were required to make a Minute Wheel and Pinion Assembly (no teeth required), the wheel to be crossed out with three spokes and riveted to the pinion, the combination to rotate on a blued post with square base and retained by a taper pin. Two candidates achieved a pass with merit and a further eight passed. The remaining candidates achieved good dimensional accuracy, but were unable to remove filing and machining marks well enough to achieve a pass standard on workmanship and finish.

### Accuracy

All candidates scored well, with most of their measured dimensions within the wider tolerance limit. Among those who passed, five had no dimensions outside the wider tolerance limit, and two had all dimensions within the specified tolerance, achieving full marks on this section.

### Workmanship

Turning the post, filing the square base and cutting the thread were mostly well done and some good quality bluing was seen, although many were not well practiced at this. The main difficulties were removing turning marks from the top and bottom of the base and getting the pin hole central and in the right place to give minimal end shake. The wheel crossings were the main difficulty for all candidates, generally showing irregular curves and an almost total absence of sharp corners. Obvious file marks remained on many pieces and even marks from the piercing saw on some. The pinion blank was well turned with a reduced diameter at the outer end, as required. Again, turning marks were not always removed from the shoulder. Flush riveting it to the wheel was done very well by most, but some showed a clear ring where the countersink had not been filled. There was also evidence of soldering.

### Finish

As in previous years many achieved a good or high polish on the wheel and pinion, but most showed some degree of underlying scratching, often quite severe. The wheel crossings were not well finished. Only one piece showed evidence of draw filing the edges before polishing, and none were well finished in the corners. Several were left as filed, with no finishing at all. The finish on the post was better with several scoring the maximum mark for bluing and polishing. Threads were less well polished and some not at all. The ends of the thread and post were sometimes neglected, but a good polish was achieved by those who attempted it.

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## D3 Servicing and Correcting Faults in a Single Train Clock.

Candidates were provided with a single train carriage clock movement with introduced faults. All candidates completed the service within the allotted time. Five passed of whom one achieved a Pass with Merit, the average mark this year was 48%.

As in previous years, the marking consisted of an initial Critical Section which considers essential points such as the accuracy of time keeping, correcting the introduced faults, safe ratchet action and sufficient friction for hand setting to ensure the servicing meets a minimum standard. Also included are hand alignment, tightness of screws, freedom from fingerprints and oil smears and lubrication.

In the Critical Section, the introduced faults were a damaged mainspring eye, a missing taper pin and a worn pivot hole requiring bushing. All were found and successfully corrected apart from a riveted bush where severe damage was caused to the inside of the plate filing it flush, and two mainspring eyes that were left as filed with sharp corners and rough edges. Amplitude and beat were generally very good with only one or two being outside the criteria. Several, however, failed on rate with some showing large gains or losses. The main difficulties this year were tightness of screws and oil smears.

The platform escapements were generally well serviced with the only reported faults being a few hairsprings not perfectly flat or central, a small number of candidates mistakenly oiled the impulse jewel.

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## D4 Servicing and Correcting Faults in a Quartz Watch.

The candidates were provided with a quartz watch containing an ETA 955.112 quartz movement. This was fitted with dial and hands and cased in a stainless steel waterproof case. Candidates were allowed six hours to correct the introduced faults and service the watch.

The marking assessment includes several important points in the Critical Section to determine whether candidates can complete a routine service to the quality a customer would expect. The technical assessment considers in greater detail how well some of the more technical aspects were completed.

### **Critical Marking**

All watches were working at Critical Section marking and on time. The number of candidates who were proficient in all the criteria in the Critical Section was lower than expected. Some pivots were either over oiled or had no visible oil under a microscope.

Most students fitted the stem and crown correctly. However it was also noted by the examiners that some stems were too long and not all crowns turned without a wobble.

### **Identification and correction of faults**

Half of all candidates missed some of the introduced faults. It was noted that not all the battery insulators were inserted correctly, this is something that was highlighted last year.

### **Cleanliness and Lubrication**

The examiners noted that in some cases the cleanliness was not as good as in previous years with some finger marks visible.

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## **D5 Constructing Clock and Watch Components.**

Candidates were required to make a carriage clock sized assembly of cock, plate and squared arbor, designed to ensure that candidates can demonstrate a broad range of practical skills. These include fitting a jewel hole, filing and turning brass and steel to ensure correct working fits and achieving a high standard of finish whilst maintaining required dimensions within tolerance. Polished or grained finishes are specified for major components. Where not specified the components must be finished in accordance with good practice.

### **Accuracy**

One candidate achieved a high level of dimensional accuracy with all measured dimensions within the specified tolerance. The remaining entries were disappointing, each having two dimensions only within tolerance. Others were close enough for an intermediate mark, but all had at least two with large errors that failed to score. Side shake of the bottom pivot in the jewel hole was better this year. End shake was not as good with only two pieces being correct, the remaining pieces had either excessive or no endshake.

### **Workmanship**

Quality was variable, with some pieces achieving well above half marks on this section and others below half marks. There were no common difficulties, each aspect of the work was done well by some and poorly by others. One candidate produced an excellent 45° chamfer round the top of the cock whilst others were poor scoring just one mark or two. Two candidates did an excellent job of the small pivot, sharp corner, flat shoulder, neat chamfer, truly parallel, nicely rounded end, nothing to fault, full marks. Lifting slots were better this year with one excellent and two above average attempts. In three examples the cocks fitted well with accurately spaced steady pins snugly fitting the holes.

### **Finish**

One candidate achieved a mark of 28 out of a possible 30 for this section, which represents one of the best finished pieces ever seen for this exercise. Other candidates did well in certain areas. Hardening, tempering and bluing of the screw was well done by all, as was the polishing of the squared portion of the arbor. The turned portion of the arbor was less well done, none having a good polish. The main difficulty for most candidates was the polished finish on the cock. The examiners noted that two pieces had a good polish with sharp edges but many scratches and filing marks remained visible under the polish. Others had clearly been polished with a polishing mop causing severe rounding of edges, this lost considerable marks.

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## **D6 Drawing Clock / Watch Escapements.**

All candidates submit a coursework drawing, common to both Clock and Watch pathways, and sit a three hour examination, which may differ for each pathway.

The coursework required a plan view and sectional side view of the fork, horns and rollers of the Swiss lever escapement. The examination for clock candidates required front and sectional side views of a longcase dead beat escapement including wheel and pallet arbors, escape pinion and part of the crutch. For watch candidates front and side views of the escape wheel and pallets of a Swiss lever escapement, showing the escape wheel, escape arbor and pinion and pallet stones. Some candidates used CAD for both drawings this year and several submitted manual drawings. Six candidates achieved a Pass with Merit.

## **General**

Candidates who enter this exam can pass using CAD or manual drawings. In order to pass those candidates who choose to produce manual drawings must practice more in order to have consistency in line styles and thickness. They must have a good knowledge of the conventions for gears, screw threads and sectional views. Practice and experience will improve drawing speed, enabling a pass to be achieved.

## **Layout and conventions**

Drawings were generally well laid out and suitably spaced. Text size was larger than ideal in some cases. Conventions for sectional views, gears and pinions were also well known, except for a few minor errors. Examiners noted the use of thick lines instead of thin for cross hatching and there was confusion over which convention to use for a screw in a threaded hole, conventions for internal and external threads being slightly different.

## **Geometrical Constructions and Accuracy**

Most aspects of the drawings were correctly constructed and dimensionally accurate. The only serious errors were an oversized impulse jewel, in the coursework drawing, and an error in locating the position of the entry pallet discharge corner in the watch paper. Otherwise constructions were generally correct and accurate. Examiners reported that although the correct 5:3 division of the combined impulse plane was correctly achieved, the method of achieving it was not always apparent in the CAD drawings. Candidates are advised to leave all construction lines in place, as marks may be lost if there is no evidence that a correct technique has been used.

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## **D7 The Practical Servicing of Clocks.**

Each candidate is required to submit a Record of Repairs giving details of eight clock repairs. All the records submitted that met the necessary requirements were awarded a pass.

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## **D8 The Recoil Escapement, Design and Construction.**

The examination required candidates to design and make recoil pallets to work with an escape wheel provided by the Institute. A time limit of eight hours was allocated for this task.

### **Accuracy of Action**

Not all candidates were able to achieve a working escapement, the pallets engaging too deeply into the wheel to allow the teeth to escape. Of the candidates that did achieve working escapements, all teeth were able to escape cleanly. Impulse angles, and recoil angles were all within the allowed tolerance.

### **Accuracy of Construction**

Dimensions that do not affect the action were mostly within tolerance, the exception being the pallet arm thickness; specified as 2 mm, with all being oversize between 2.5 mm and 3 mm. All the pallets had been hardened but were not "dead hard". The working pallets matched well with the design drawings, and spanned the specified number of teeth, 7½.

### **Workmanship and Finish**

The standard was not good this year. Candidates had clearly concentrated on the acting faces of the pallets. These had unblemished surfaces and a good polish, but slight underlying scratches were evident and some faces were not properly flat. Other surfaces were less well finished showing rounding of corners and edges and filing marks not completely polished out.

## D9 Servicing and Correcting Faults in a Striking Clock.

The examination required candidates to service a French pendulum clock movement with rack striking and to make and fit a new pendulum using the rod, bob, hook and suspension spring supplied. Additionally, the candidates needed to identify and correct four introduced faults.

The clocks submitted for assessment scored well in most areas with only occasional loss of marks. All candidates passed with two achieving Pass with Merit, one with a perfect score of 100%. Very well done.

### Servicing

Oiling was of an excellent standard, but not always complete. Examiners noted a failure to oil the mainsprings and the fly arbor pivots. In some cases lifting levers and locking pins were not oiled, as well as other contact points in the striking train. The rack striking worked correctly in all cases, in striking the correct number of blows at each hour but was not always correctly set up, releasing the strike a minute before the hour and another at half a minute past. Some had considerably less run to warning than the recommended “half a turn” but it was sufficient. Escapements were correctly set up and adjusted giving a good amplitude to the pendulum. The click work was all safe and positive in action, although the screws could have been tighter in some cases.

### Making and fitting a pendulum

The required pendulum length was correctly calculated in all cases and the pendulums made to the correct length. The hook and bob were all well fitted, with nicely cut threads and tightly fitted hooks, although one showed an unnecessary 2 or 3 mm of excess thread below the hook.

### Identifying and repairing introduced faults

The introduced faults were four of the following: damaged mainspring eye, worn pivot hole, insufficient friction for hand setting or fly, missing domed brass washer or missing collet. All candidates correctly identified their four faults and corrected them to a very high standard, by repairing the damage or making a matching replacement.

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## D10 The Practical Servicing of Complex Clocks.

Each candidate is required to submit a Record of Repairs giving details of ten clock repairs. The records submitted met the necessary requirements and were awarded a pass.

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## D11 The Theory of Complex Clocks and their Repair, Restoration and Conservation.

The paper consisted of a main section worth 80 marks requiring written answers to questions concerning the marine chronometer, the Atmos clock, the grid-iron compensated pendulum, the 400-day clock, the dead beat escapement, the 4-legged gravity escapement, temperature errors in the plain balance, middle temperature error in the split balance, and English rack chiming. An addition section of 20 short answer questions covered the remainder of the syllabus.

There was a sound knowledge and understanding of all the material in the main section, with only two answers falling below the standard of excellence. The short answers also demonstrated an all-round knowledge of the remaining areas of the syllabus.

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## D12 The Deadbeat Escapement, Design and Construction.

Candidates were required to make a dead-beat escape wheel and a set of pallets to work together when mounted on a small base plate with the wheel and pallets on studs rivetted to the plate. The escapement was of “Vienna” size.

Pallets were well proportioned and the action was good. The acting faces had a high polish and the remaining surfaces a uniform fine grain retaining sharp corners and edges throughout. The teeth were accurately cut and uniform and the wheel correctly centred.

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## D13 The Practical Restoration and Conservation of Clocks.

The Portfolio requires candidates to submit a detailed account of the conservation or restoration of five clocks. The work must include a range of advanced repair techniques, and a range of replacement parts made by the candidate. The report is to be written under the headings; Appraisal, Conservation/Restoration Process, Justification of the Conservation/Restoration Approach and Research. This should be illustrated with suitable photographs and diagrams.

There were no candidates that submitted a Portfolio this year.

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## D14 The Practical Servicing of Quartz and Mechanical Watches.

Each candidate is required to submit a Record of Repairs giving details of ten watch repairs. The records submitted met the necessary requirements and were awarded passes.

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## D15 Servicing and Correcting Faults in a Manual Wind Watch.

Candidates were provided with a manual winding watch containing an ETA 6498 movement, fitted with dial and hands and in a stainless steel waterproof case. Four faults were introduced into the watch, with equal weighting (from an approved list). Candidates are allowed seven hours to correct the introduced faults and service the watch.

The marking assessment includes a number of important points in the Critical Section to determine whether candidates can complete a routine service to the quality a customer would expect. The technical assessment considers in greater detail how well some of the more technical aspects have been completed.

### Critical Section

All candidates' watches passed the waterproof testing. Almost all screws were tight, hands were correctly aligned with no debris under the glass, oiling points were generally oiled. Timekeeping in the various test positions were mostly within tolerance.

### Identification and correction of faults

The number of introduced faults that were identified and corrected was poor and considerable marks were lost due to missed introduced faults. Only one candidate correctly identified these introduced faults. The adjustment of the ETACHRON system or understanding the effects of curb pin error/isochronism was not evident in most cases with the hairspring not able to breathe correctly between the pins. An incorrectly adjusted hairspring that was bent downwards was also noted by the examiners.

### Cleanliness & Lubrication

Most candidates submitted watches in good condition. However, in many cases it was clear that more practice was needed to apply the correct quantity of oil.

### General

The examiners did not notice any damage to the case dial or hands, this was good to see.

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## D16 Servicing and Correcting Faults in an Automatic Watch.

Candidates are provided with an automatic winding watch containing an ETA 2824 movement, this was fitted with dial and hands and cased in a stainless steel waterproof case. Four faults were introduced into the watch, with equal weighting (from an approved list). Candidates are allowed eight hours to correct the introduced faults and service the watch.

The marking assessment includes a number of important points in the Critical Section to determine whether candidates can complete a routine service to the quality a customer would expect. The technical assessment considers in greater detail how well some of the more technical aspects have been completed.

### Critical Section

All candidates' watches passed the waterproof testing. All screws were tight, hands were correctly aligned with no debris under the glass, oiling points were generally well oiled, and timekeeping within specified tolerances for this movement. All candidates passed this critical section.

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## Identification and correction of faults

All of the introduced faults were identified and corrected this year. This was excellent.

## Cleanliness & Lubrication

Candidates submitted watches in good condition and all work was completed to a very high standard. There was generally no marks on the movement dials or hands, although examiners noted slight finger marks on a ratchet wheel. The cases were clean and unmarked. The movements were also clean, and oiling was generally very good. The only area of note was the pallets and escape wheel, examiners noted that oil was visible under one of the pallet stones and on the tops of one of the teeth on one of the escape wheels. Examiners check this with a microscope so it is important to be very accurate.

## General

The hand alignment and spacing was very good and oiling was generally to a high standard. Timekeeping in all positions was well within specified tolerances. The overall standard of work was very high and pleasing to see.

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## D17 The Practical Servicing of Complex Watches.

Each candidate is required to submit a Record of Repairs giving details of fifteen watch repairs. The records submitted met the necessary requirements and were awarded passes.

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## D18 The Theory of Complex Watches and their Repair, Restoration and Conservation.

The paper consisted of a main section worth 80 marks requiring written answers to questions concerning the marine chronometer, temperatures errors in the plain balance, middle temperature error in the split balance, calendar work with day, date, month and moon phase, manual correction for short months, automatic correction in the perpetual calendar, the single push piece chronograph and self winding work in automatic watches. An additional section of 20 short answer questions covered the remainder of the syllabus.

There was a good knowledge of all the material in the main section, with many good and full answers, but clearly there was a shortage of time towards the end as all questions were not answered fully. The short answers section produced additional correct answers.

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## D19 The Practical Restoration and Conservation of Watches.

The Portfolio requires candidates to submit a detailed account of the conservation or restoration of each of five watches. The work must include a range of advanced repair techniques and a range of replacement parts made by the candidate. The report is to be written under the headings; Appraisal, Conservation/Restoration Process, Justification of the Conservation/Restoration Approach and Research, this should be illustrated with suitable photographs and diagrams.

There were no Portfolio's submitted this year.

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## D20 Servicing and Correcting Faults in a Chronograph.

Candidates are provided with a chronograph watch containing an ETA 7750 movement, this was fitted with a dial and hands, cased in a stainless steel waterproof case. A number of faults were introduced into the watch, with equal weighting (from an approved list). Candidates were allowed sixteen hours to correct the introduced faults and service the watch.

The marking assessment includes a number of important points in a Critical Section to determine whether candidates can complete a routine service to the quality a customer would expect. The technical assessment considers in greater detail how well some of the more technical aspects have been completed.

This is the most difficult of the servicing units and can only be undertaken after successfully completing all the other watch servicing units.

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## Critical Section

All watches passed the waterproof testing. All screws were tight, hands correctly aligned with no debris under the glass, oiling points were well oiled, with timekeeping almost within specified tolerances. The allowed tolerances at this level are very small. The watch is tested for accuracy of rate in three different positions, additionally an average is also recorded and tested. The Critical Sections were passed with full marks.

## Identification and correction of faults

All introduced faults were found and corrected as would be expected at this level.

## Cleanliness & Lubrication

Candidates submitted watches that were in very good condition and serviced well.

## General

The hand alignment and spacing was very good and dials were undamaged. The marking criteria for this unit is very strict with little room for error, The marks that were lost were mostly due to the rate being out of range in the various test positions. Candidates achieved a Pass with Merit.

Very well done.

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## Appeals.

If you feel that there is an error in these results, you can appeal to us for a unit (or units) to be re-assessed. An appeal, which must be received no later than 21 days following the release of Examination results and must clearly state the grounds upon which the appeal is being lodged. The appeal request must also be accompanied by payment of the relevant fee (which can change from year to year). In the event of a successful appeal, this fee is re-fundable.

The appeal process should not be entered into lightly. If you are thinking about an appeal on the grounds that you only just failed a unit by a few marks, or indeed only just missed out on a 'Pass with Merit'. **Candidates should remember that your work will already have been additionally assessed by two experienced examiners and a Senior Examiner.**

The BHI Chief Examiner is responsible for administering the appeal process and will arrange for the candidate's work to be re-assessed by two other members of the Examinations Board – that is to say, examiners who were not responsible for the original assessment. Together these three individuals constitute an appeal panel. The role of the appeal panel is to consider whether or not the outcome of the initial assessment was correct. When the appeal panel has completed its deliberations, the Chief Examiner will notify you exactly how the panel considered your appeal and its decision.

The BHI, having followed this appeal process, will have been deemed by EAL to have fulfilled its duty to the candidate and no further appeals will be considered.

## Prizewinners – 2023 Examinations

With thanks to prize donors for their support.

<b>The BHI Bronze Medal</b> – the Diploma in the Repair, Restoration and Conservation of Clocks and Watches – Level 5	Not Awarded
The Diploma in the Servicing and Repair of Clocks and Watches – Best Result <b>Worshipful Company of Clockmakers</b>	<b>Robert Talbot</b>
Diploma in Clock and Watch Servicing – Level 3 – Best Result <b>British Watch and Clock Makers Guild</b>	<b>Jurjen Van Der Eems</b>

### Unit Prizes

D1	Best Theory Paper, Clocks / Watches <b>Malcolm Barratt Prize</b>	<b>Julian Bosley</b>
D2	Best Technician Grade Practical Test Piece <b>The Beresford Hutchinson South London Branch Prize</b>	<b>Kurt Bauwens</b>
D3	Best Serviced Carriage Clock <b>Charles Dilley Memorial Prize</b>	<b>Julian Bosley</b>
D4	Best Serviced Quartz Watch <b>BHI Prize</b>	<b>Jacob Reznicek</b>
D5	Best Practical Test Piece <b>BHI Prize</b>	<b>Robert Talbot</b>
D6	Best Drawing, Clock / Watch Escapements <b>Malcolm Barratt Prize</b>	<b>Robert Talbot</b>
D8	Best Recoil Escapement <b>Iain Campbell Memorial Prize</b>	<b>Alistair Lewis</b>
D9	Best Serviced Striking Clock <b>The Barry Corbishley Prize</b>	<b>Oliver Allen</b>
D11/18	Best Theory Paper Clocks / Watches – D11 Final Grade <b>BHI Prize</b>	<b>Kester Sims</b>
D12	Best Deadbeat Escapement <b>BHI Prize</b>	<b>Mark Baird</b>
D13/19	Best Portfolio, Watches <b>BHI Prize</b>	Not Awarded
D15	Best Serviced Manual Winding Watch <b>Arthur Tremayne Memorial Prize</b>	<b>Daniel Stent</b>
D16	Best Serviced Automatic Watch <b>BHI Prize</b>	<b>Daniel Stent</b>
D20	Best Serviced Complicated Watch <b>BHI Prize</b>	<b>Robert Talbot</b>

## BHI Diplomas Awarded – 2023 Examinations

Diploma in Clock & Watch Servicing – Level 3					
<b>Julian Bosley</b>	Clock	PwM	<b>Finley Castle</b>	Clock	Pass
<b>Jurjen Van Der Eems</b>	Watch	PwM	<b>Andrea Masutti</b>	Watch	Pass
<b>Jakub Reznicek</b>	Watch	PwM	<b>Justin Sharp</b>	Clock	Pass
<b>Gary Williams</b>	Watch	PwM	<b>Ben Wheeler</b>	Clock	Pass
Diploma in the Servicing and Repair of Clocks/Watches – Level 4					
<b>Robert Kramer</b>	Watch	PwM	<b>Kester Sims</b>	Clock	Pass
<b>Robert Talbot</b>	Watch	PwM			
Diploma in the Repair, Restoration and Conservation of Clocks/Watches – Level 5					
Not Awarded					

## The Unit Structure for each of the ‘Diploma’ Awards.

Diploma in Clock and Watch Servicing (Level 3)	
Unit No.	Mandatory Units
D1	The Theory of Clock and Watch Servicing (Theory Examination)
D2	Constructing Clock Components (Practical Test Piece)
Clock Pathway	
D3	Servicing and Correcting Faults in a Single Train Clock movement (Servicing Test)
Watch Pathway	
D4	Servicing and Correcting Faults in a Quartz Watch (Servicing Test)
Diploma in the Servicing and Repair of Clocks/Watches (Level 4)	
Unit No.	Mandatory Units:
D1	The Theory of Clock and Watch Servicing (Theory Examination)
D5	Constructing Clock and Watch Components (Practical Test Piece)
D6	Drawing Clock / Watch Escapements (Drawing Escapements Examination)
Clock Pathway	
D3	Servicing and Correcting Faults in a Single Train Clock Movement (Servicing Test)
D7	The Practical Servicing of Clocks (Record of Repairs)
D8	The Recoil Escapement, Design and Construction (Servicing Test)
D9	Servicing and Correcting Faults in a Striking Clock Movement (Servicing Test)
D10	The Practical Servicing of Complex Clocks (Record of Repairs)
D11	The Theory of Complex Clocks & their Repair, Restoration & Conservation (Theory Exam)
Watch Pathway	
D4	Servicing and Correcting Faults in a Quartz Watch (Servicing Test)
D14	The Practical Servicing of Quartz and Mechanical Watches (Record of Repairs)
D15	Servicing and Correcting Faults in a Manual Winding Watch Movement (Servicing Test)
D16	Servicing and Correcting Faults in an Automatic Watch (Servicing Test)
D17	The Practical Servicing of Complex Watches (Record of Repairs)
D18	The Theory of Complex Watches & their Repair, Restoration & Conservation (Theory Exam)
Diploma in the Repair, Restoration and Conservation of Clocks/Watches (Level 5)	
Unit No.	Mandatory Units
D1	The Theory of Clock and Watch Servicing (Theory Examination)
D5	Constructing Clock and Watch Components (Practical Test Piece)
D6	Drawing Clock / Watch Escapements (Drawing Escapements Examination)
Clock Pathway	
D7	The Practical Servicing of Clocks (Record of Repairs)
D8	The Recoil Escapement, Design and Construction (Servicing Test)
D9	Servicing and Correcting Faults in a Striking Clock Movement (Servicing Test)
D10	The Practical Servicing of Complex Clocks (Record of Repairs)
D11	The Theory of Complex Clocks & their Repair, Restoration & Conservation (Theory Exam)
D12	The Dead Beat Escapement, Design and Construction (Practical Test Piece)
D13	The Practical Restoration and Conservation of Clocks (Portfolio)
Watch Pathway	
D14	The Practical Servicing of Quartz and Mechanical Watches (Record of Repairs)
D15	Servicing and Correcting Faults in a Manual Winding Watch Movement (Servicing Test)
D16	Servicing and Correcting Faults in an Automatic Watch (Servicing Test)
D17	The Practical Servicing of Complex Watches (Record of Repairs)
D18	The Theory of Complex Watches & their Repair, Restoration & Conservation (Theory Exam)
D19	The Practical Restoration and Conservation of Watches (Portfolio)
D20	Servicing and Correcting Faults in a Chronograph Movement (Servicing Test)

