CLOCKS ADVISERS FORUM

A Code of Practice For Turret Clock Work

Objective
This Code of Practice has been produced by turret clock advisers with additional input from turret clock restorers for distribution by the Clocks Advisers Forum (CAF) and sets out best practice for those caring for, and carrying out work on a turret clock. The objective is to establish principles that will preserve turret clocks that have been voluntarily agreed by all those concerned. This Code of Practice has been produced primarily for use by clock advisers and turret clock conservator/restorers so they have one agreed document to work with but others may find its contents of use. The contents apply to any turret clock and it is hoped that it will be adopted and used as the standard Code of Practice by all those concerned with turret clocks.

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01 A Turret Clock
A turret clock that is in working order makes a positive contribution to the building that houses it and if it is a striking clock it makes a particular aural contribution to the surrounding area. An out-of-use turret clock has a negative impact that is surprisingly strong. A working clock in good order is usually noticed and appreciated. Sometimes associated with turret clocks are tune or chime barrels which are separate machines set-off by the clock that play tunes on the bells at set times of the day.

Later turret clocks may also have been made originally to use electricity in some way instead of being just mechanical. Electric clocks in their basic form or master clocks with their slaves and waiting trains, etc. all need to be considered carefully and specialist advice obtained on them from a clock adviser before any action to replace them is considered.

02 Historical Importance
All turret clocks are of historical importance whether signed by a famous maker or mass-produced. Clocks should be kept in good condition and maintained in use wherever possible.

The Antiquarian Horological Society (AHS): http://www.ahsoc.org/ has a specialist Turret Clock Group whose members are familiar with historical aspects of turret clocks and maintain the national database for turret clocks. The Church of England will be able to offer technical and historical advice on a clock in a church through the Diocesan Clocks Adviser in the diocese in which the clock is located.

03 Conservation – what is it and why?

Conservation is a way of working that protects the object, in this case a turret clock, from being changed in a way that is not acceptable. Further information on conservation is available from the Institute of Conservation (ICON): https://icon.org.uk

The Church of England follows conservation principles for works to its historic church buildings and interiors, including turret clocks. More information on conservation principles can be found in the Historic England document *Conservation Principles:* https://historicengland.org.uk/images-books/publications/conservation-principles-sustainable-management-historic-environment/ More information for parishes can be found on the Church of England Guidance Note on Turret Clocks: http://www.churchcare.co.uk/churches/art-artifacts-conservation/caring-for-conservation-of-artworks-historic-furnishings/clocks See Turret Clocks in the Church of England as Appendix 1.

Conservation principles, as far as is practicable, should be followed when working on turret clocks:

- Fault-finding - Assess and repair the underlying causes of a problem, not just the effects. For example if the strike has started to become slow don't add more weight to the weight stack to speed it up but find the cause of the slow running and repair that instead.
- Reversibility - Any additions should be reversible, for example any new component fitted to an existing clock frame, such as for night-silencing, should be attached by means of clamping plates rather than by drilling the frame and fixing with a bolt. It is best if all additions are mounted on separate frames so the original clock movement is left intact.
- Documentation - Always provide a written record of your work in a Post-Conservation Report stating the decisions taken and the rationale behind those decisions to enable those in the future to understand why and how a change was made and to be able to distinguish original from addition. Provide a copy of your Post-Conservation Report to the building's owner.
- Context and accountability - Making judgements on conservation is a matter of balancing all the different values including the context to make a decision, consulting published sources of information, and documenting that decision. For example, if considering installing a pendulum corrector, the advantage of a clock that tells the time accurately needs to be balanced with the potential loss of identifying a fault occurring with the clock movement if regular inspections are not undertaken. Consider the impact of your decision on all aspects of the clock, and its surroundings. Unsympathetic work can interfere with the interpretation of the clock, for example, automatic winding units placed directly on top of the clock movement.

Conservation-based repair and restoration is the best way to preserve and protect a turret clock now and in the future. Letting these ideas inform practical decisions should result in work being done in a conservation friendly way.

It is recommended that those working on turret clocks are members of the British Horological Institute and have professional conservation accreditation or are working towards professional conservation accreditation.

04 Looking after a clock

It is appropriate to have one person in a building, the clock keeper or a responsible person, who has overall responsibility for the well-being of the turret clock. When a clock is hand-wound this will usually be the person who winds the clock, or one of a team of winders. Where a clock has been converted to automatic winding it is still good practice to have someone responsible for it and who is willing to visit the clock occasionally on a regular basis at least once a month to see that all is well. Where possible it is good for the clock keeper to have a deputy for holiday absences and be trained to succeed them. The clock keeper will

be able to set the time correctly, manage the twice yearly hour changes, and ensure that the clock case is in good order to protect the clock movement from dust and dirt.

Practical information on looking after a turret clock is available in the A4 revised edition of the 'Turret Clock Keeper's Handbook' by Chris McKay (ISBN-13:978-1492317708) which may be purchased online: http://www.turretclock.force9.co.uk/ A free copy of the A5 earlier version can be downloaded from the website.

05 Maintenance

The best way to conserve a turret clock is by regular maintenance as a turret clock installation should be serviced at least once a year. The work should be carried out by someone competent in the field of turret clock maintenance, restoration and conservation. It is recommended that every ten years the movement is fully dismantled and properly cleaned and serviced. An annual maintenance contract is an excellent way to preserve a turret clock.

It must be emphasised that all items of a turret clock installation need inspection and servicing. An installation comprises: clock movement, weights, weight lines, pulleys, bevel gears, leading-off work, motion work, dials and hands, bell cranks and clock bell hammers. There are peripheral items like the clock case, stand or movement support, weight chutes, plus removable boxes that protect the bevel gears and motion work. In addition, automatic winders, night silencers and pendulum correctors may be installed.

A maintenance visit must entail:

- Cleaning - All excess oil, grease and dirt needs to be removed from all parts relating to the clock and the wheel teeth and pinions brushed out. The inside of the clock case should be cleaned. Once a year arrange for the clock room and exterior of the clock case to be vacuum cleaned. It is most important to check for any small parts that may have fallen off or been taken off the clock movement in the past before any cleaning in the clock case or clock room takes place, anything found should be retained for inspection.
- Lubrication - The pivots of all parts that rotate should be oiled, parts that slide should be greased on their rubbing surfaces, also all springs must be greased especially the suspension spring. Wheel teeth are not lubricated with the exception of the escape wheel and pallets which are oiled. (Wrought iron wheels can be lightly greased). Only appropriate lubricants should be used that are specifically designed for use with a turret clock.
- Additions - Automatic winders, night-silencers and pendulum correctors should be serviced in accordance with the manufacturer's guidelines. Where these are recently fitted they may still be under manufacturers warranties and nothing should be done that would invalidate these.
- Dials - Dials should be inspected with binoculars to visually assess the condition of the dial, its fixings, hands and surrounding stonework.
- Inspection - The whole installation should be inspected and any issues of health and safety, wear or impending problems must be reported to the Clock Keeper straight away and noted on the Service Report card hung inside the clock case which must not be removed.
- Recording work done - After work has been completed what was done and why must be entered on the Service Report card detailing the date and who carried out the work. A tick list form is acceptable and a sample Service Report card has been included as Appendix 2. For Church of England churches, all maintenance and service visits must be recorded in the Church Log book.
- Recording work not done - Where an item has not been serviced this should also be recorded on the Service Report card along with the reason why. Valid reasons might be the bell hammers and cranks are serviced by another person with responsibility for them such as the Tower Keeper, or an item is inaccessible, for example, a head pulley high above the floor. A plan to correct the problem should be developed.

06 Contractors
All practical work on turret clocks should be undertaken by qualified, professional, turret-clockmakers following conservation principles. Appropriate contractors can be found through The British Horological Institute (BHI): www.bhi.co.uk or The Conservation Register: http://www.conservationregister.com/

07 Automatic Electric Winders
It sometimes becomes impractical to find someone in a building to wind the clock on a regular basis, particularly when a clock has to be wound every few days because of an insufficient weight drop or has very heavy weights. In some cases access is difficult or hazardous but providing safer access to a clock, for example, installing a spiral staircase, is an option. Relocating the movement within the tower is another possibility, but a less satisfactory solution from a historical point of view.

An automatic winder will remove the task of manually winding a clock. The automatic winder usually comprises a small weight that is wound up at regular intervals by an electric motor. Generally the automatic winder drives the clock by a length of roller chain.

When installing automatic winders it is vital that the integrity of the turret clock is preserved. No holes should be drilled into the clock frame, no slots cut out and no parts are to be removed. The automatic winder should be attached to an external frame made of hardwood or steel. Utilising parts of the clock to attach an automatic winder, for example, securing bolts of bearing blocks and frames is not acceptable. The clock must always remain completely intact so that it is possible to reverse the process and put the clock back to its original state simply by removing the added parts without leaving any signs that automatic winding has ever been fitted. The clock case should not be drilled or cut to fit automatic winders or their electric cables.

If the clock has had automatic winders fitted many years ago and they are now being replaced it is recommended that the whole automatic winder installation is looked at again in a re-assessment to see if it can be improved and brought up to modern-day standards. The following show some things that may be found during a re-assessment which should be corrected if possible:

- If the drive sprocket is on the second arbor of a train it is a good time to move to main barrel automatic winding.
- When the going train has the drive sprocket on the second arbor but the minute arbor is separately meshed with the great wheel, the great wheel should not idle between the two.
- When the strike or quarter great wheels undertake the action of lifting the bell hammers and the automatic winder drive sprocket has been fitted on the second arbors.
- When automatic winders are fitted very closely on top of the movement by rails bolted to the top of the clock frame affecting normal operation, free access for time-setting and servicing of the clock.

The following requirements should be observed:

The drive to the clock must be to the great wheel or barrel assembly (main barrel automatic winding). This is because clock gearing is designed for a large wheel to drive a smaller pinion. To drive a large wheel by a small pinion can result in abnormal wear on pinion leaves and wheel teeth or broken great wheel teeth if a jam occurs.

Winding jacks or built-in reduction gears must never be used as part of an automatic winding installation.

The original weights and pulleys should be retained in the building, ideally at the bottom of the weight chute and clearly labelled to prevent accidental disposal. There is no need to retain old wire or rope weight lines. Weight chutes, although no longer in use, should ideally be preserved and protected so it would be possible to return the clock to manual winding to fulfil the aim of reversibility.

Some automatic winders comprise a weighted arm that is fastened to the winding square which is raised periodically by an electric motor, these are known as remontoire winders. Where a remontoire winder is employed no modification should be made to a clock case to accommodate the remontoire winder, rather it should be mounted off the clock with a chain drive to a sprocket on the great wheel or barrel assembly.

It is advisable to have the movement cleaned and overhauled when automatic winding is fitted, unless this has been done very recently.

All automatic winders must incorporate an emergency over-wind switch in case the normal switches or sensors fail to stop the winding motors.

Suitable power supplies must be provided by a qualified electrician in accordance with the relevant electrical regulations. Wiring to existing automatic winders should be checked to ensure it is still safe.

Electric direct-drives have been used in the past, their principle is to have an electric motor that drives a striking or quarter train directly by the fly arbor with the fly vanes removed. For the going train a direct-drive involves removing the escapement and installing a synchronous motor usually connected to the minute arbor by a chain. The fitting of a direct-drive is now totally unacceptable for new installations, even on a temporary basis! If electric direct-drives are found they should be re-assessed and a plan made to reverse the situation to main barrel automatic winding as soon as possible if the parts to do this are still present.

Automatic winders will normally be included in an annual maintenance contract. The presence of automatic winding does not remove the need for a regular visual inspection of the clock to ensure that all appears to be well and to regulate the time keeping. Pendulum correctors are available to regulate the time keeping of clocks but again they are not a substitute for the occasional inspection.

The addition of an automatic winder does not mean out-of-sight and out-of-mind as annual servicing is still required! A monthly visit to check the clock is strongly recommended.

08 Night-Silencing

Night-silencing is used to prevent a clock from striking the hours and quarters during the night time hours. There may be a need for such a device in certain situations.

A night-silencer usually comprises a linear actuator that is activated by a time switch. In the evening the actuator pulls the clock bell hammers away from the bells, in much the same way as they are pulled off for bell ringing, and the bells then do not sound. In the morning the clock bell hammers are lowered to their normal operating position.

Alternative systems exist where the striking train on the clock is prevented from running; normally this is for 12 hours.

A pendulum corrector may possibly be used to stop a clock for 12 hours only so that the clock will continue to strike the correct hour when it is re-started.

Before night-silencing is installed it would be wise to discuss the situation with bell ringers and your local community and environmental health officers. A view might be taken that quarter-striking at night is stopped but hour-striking continues. Pre-existing sounds now legally take precedence over new buildings built near churches and other buildings. The Central Council for Church Bell Ringers (CCCBR) web site has a page on noise nuisance from bell ringing: https://cccbr.org.uk/

09 Bells and Bell Hammers

Bell hammers and their associated bell cranks and cables can easily be neglected, but must receive regular inspection and lubrication of all moving parts as part of the annual maintenance of the clock. If the clock is in a church the Tower Keeper may wish to be present or be involved in this activity.

Bell hammers must not rest on their bells as this creates a serious risk of cracking the bell and spoils its sound. Bell hammers should be checked regularly and hammer check springs re-adjusted as necessary. A hammer should always strike its bell at right angles, on its thickest part and in such a position that it does not cause the bell to swing. If a bell has been quarter-turned because of clapper wear on the inside, the clock hammer must not strike on the outside immediately over the worn area.

When bells are hung for ringing, any clock bell hammers must be able to be lifted clear, otherwise there is a risk of damage to the bells, bell hammers or their mountings during ringing. The pull-off wires must be operated from the ringing chamber and there should be some clear indication that this has been done. If there are electro-hammers for the clock they can be isolated by an isolating switch. This switch should be prominent in the ringing room with a clear indication to the ringers that it is safe to ring.

10 Pendulum Correctors

A pendulum corrector is intended to ensure that a clock keeps correct time without regulation by the Clock Keeper. Where an automatic winder has been installed a clock's timekeeping may gradually drift from correct time because no one is now visiting the clock weekly resulting in the clock indicating a time that is many minutes out. The installation of a pendulum corrector will remove the task of having to visit the clock weekly to regulate and set to time.

Pendulum correctors work in different ways from employing an electric probe to resist the pendulum, a magnetic field to influence the pendulum, or an arrester device to hold the pendulum until the clock tells the correct time then let go of it.

Where a clock has an erratic performance it will be a bad timekeeper, the cause should be investigated. A pendulum corrector is unlikely to make a clock with an erratic performance better. In this case, a restorer should be engaged to identify the cause before a pendulum corrector is fitted. A basic turret clock with a recoil escapement should be able to keep time to within a minute a week, for a clock with a gravity escapement and compensation pendulum a performance of seconds a week can be expected but seasonal variations can occur.

11 Electro-Hammers

An electro-hammer is a clock bell hammer that is operated by a pulse of electricity. These are common in new installations or where an electronic carillon has been installed. Electro-hammers can be particularly useful where a bell installation has been augmented and room to employ the original gravity clock bell hammers is no longer available. It is generally accepted that electro-hammers do not bring out the full tone of a bell unless fitted with a heavy head.

Where electro-hammers are fitted to replace previous gravity clock bell hammers they must only be set off by switches on the clock movement. To employ a separate electronic clock is not acceptable as this may lead to the hours and quarters not being sounded in synchronisation with the clock dial.

12 Dials and Hands

Dials should be inspected regularly, both for their appearance and their condition. They can give rise to safety hazards if their fixings become insecure. Dials that require attention, whether internally or externally, should be conserved, using traditional materials as far as possible. Dial fixings should be made of a suitable material noting that different metals used for the dial and its fixings may react with each other in damp conditions. Stainless steel fixings are generally used.

Historic dials made of wood must be conserved if at all possible. Since dials are exposed to the full impact of the weather some dials will reach a condition of being beyond repair and replacement is then necessary. Replacement dials should be accurate replicas of the old dial and made of a suitable hardwood and painted in the same colours as the original. In exceptional circumstances a glass-fibre replacement dial having the same appearance as the original may be an option but the reasons for fitting this rather than a wood one must be fully investigated and permission obtained before any work is done. The resin compounds in the glass-

fibre dial may not stand the test of time. The former wood dial should be retained in the tower for future reference. It is rare for a cast iron skeleton dial to be beyond repair.

Due to the external conditions that the dial and hands on a clock tower are exposed to, restoration using conservation principles may be necessary. Re-painting and re-gilding will generally require that the dial is stripped to its base material as the existing paint may not be adhering well and the dial surface may be corroded underneath. Before work begins paint samples should be taken to act as a reference to what paint has been applied to the dial in the past. When removing paint from a dial chose a method that will be the least aggressive to the original surface of the material concerned.

Gilding should be carried out using 23.5 or 24 carat double-thickness English gold-leaf to the original, or previous, design for the particular dial. Gold paint must not be used as it loses its colour very quickly. For dials near to the sea, 24 carat is a more durable option. Dials close to trees can suffer damage from wind-blown debris. A tree surgeon would be able to advise the best treatment.

Opal glass used in nineteenth-century cast iron skeleton dials illuminated from the back is best replaced with the same material as it maintains the same appearance and lasts a long time. An acrylic substitute can only be considered if a case can be made for using it, for example, constant broken opal glasses in the dial from stones being thrown at it, but the local conservation officer, or if in a church the church architect, should be consulted first and permission obtained before work starts.

Damaged or corroded hands should be repaired wherever possible, or, as a last resort replacements made to exactly the same design as the original using the same materials. Internal counter-balances for the hands should not be removed and the hands changed for ones with external counter-balances as this will alter the traditional appearance of the dial and is not an acceptable practice. Hands should always be carefully counter-balanced and it is worth checking that they still are. As with all other types of conservation, work to clock dials should be documented with a written description of the work done, including details of all materials used, illustrated with clear photographs.

13 Turret Clock Removal and Replacement

Replacing a turret clock movement with an electric or electronic clock is only an option in very exceptional circumstances. Whilst replacement of a turret clock may stop the individual parts from deteriorating through wear (thus retaining evidential value), greater emphasis in most circumstances is placed on the loss of technological value from it not working. The presumption is therefore to keep the turret clock movement working where possible. If the clock is in a church a faculty for removal or replacement is mandatory and turret clock firms should see and hold a copy of the faculty authorizing this action before work starts. The original clock must be retained in the building preferably in the clock room.

14 Clock Relocation

Sometimes a clock needs to be relocated, usually as the result of bells being re-hung or augmented. The replacement of a mechanical turret clock by an electrical version is not an acceptable solution, rather the clock should be repositioned. This may require the addition of automatic winders since the running of weight lines may be problematical. The new position of the clock must allow for easy access for setting to time, adjusting and servicing. The original clock case should be retained, or if space does not allow, the case can be modified or as a last resort a new one made to a design agreed by the clock adviser. Clock cases made by nationally important clockmakers such as Cooke, Vulliamy, etc. should always be retained and conserved. If the clock did not have a protective case, then a suitable one should be made.

15 Risk Assessment

A risk assessment should be carried out for all issues connected with the clock. It is a legal requirement for every employer and self-employed person to make an assessment of the health and safety risks arising out of their work. It might be part of a wider risk assessment that covers the complete tower. Aspects that should be assessed include: access, lighting, safety of floors, stairs and ladders. Where weights are used the consequences of a weight line breaking should be evaluated. The wood or steel beams holding head pulleys

or line end tie-off points need their integrity investigated. The inspection and assessment should be recorded, signed, dated and kept on record. Any issues of concern must be reported to a responsible person in the building concerned. The risk assessment should be updated annually and all people involved with the clock should have read it.

The insurer of the building will be able to give advice on risk assessments. Further information on risk assessments can be found on the Health and Safety Executive's website: http://www.hse.gov.uk/risk

16 Clock Inspections

Where possible, a turret clock should initially be examined when it is fully run down to check there is still two turns of line left on the barrels when the weights are grounded at the bottom of the weight chute or pit, or on top of a weight stop box. The clock should then be wound and the line closely examined as it comes up looking for any signs of fraying, kinking, etc. Should a weight line break the consequences of the weight hitting the bottom of the weight chute should be assessed, is there a weight chute pit or impact absorbing material present at the bottom of the weight chute? If an automatic winder has been installed at least a monthly check of the clock movement is needed to ensure there are no problems. Issues normally found might include ingress of water or birds. A visual check of the clock movement should be carried out, preferably at a time when the clock is striking as abnormal sounds can raise an alarm that a problem might be developing.

Where mains-powered automatic winders, night-silencers and pendulum correctors are installed, these should have a periodic check for electrical safety. This can be done at the same time as a buildings electrical installation is tested.

17 Building Work

When building work is carried out in a tower the clock installation is at risk. Hazards include dust, grit, dirt and mechanical damage. Building work might typically be roof repairs, the re-hanging of bells, masonry work or electrical installation. During such building work, the clock movement, the motion-works, bevel gears, lead-off rods, etc, must be suitably protected against falling debris and damage. Contractors should be made aware of the issues and strong boxes made so that bevel gears and lead-off rods will not be damaged by someone standing on them. For major work such as re-hanging bells, the option of removing the clock and storing it in a safe place for the duration of the work is highly recommended.

18 Exceptions

This set of guidelines cannot cover every eventuality. For exceptional cases the advice of the British Horological Institute, Antiquarian Horological Society - Turret Clock Group, Church of England or the Clocks Advisers Forum should be obtained.

19 Funding

Grant-aid towards the cost of conservation or repair may be available from grant givers such as the Heritage Lottery Fund: http://www.hlf.org.uk or the Church of England:
http://www.churchcare.co.uk/churches/funding-and-grants/our-grants/clocks-
The Church of England, Funding Guide 12, describes the Landfill Communities Fund which supports community, built heritage and environmental projects in the vicinity of landfill sites and / or landfill operator depots: http://www.parishresources.org.uk/wp-content/uploads/FG12_Landfill_Communities_Fund.pdf
The ChurchCare website is being gradually amalgamated into the Church of England website so if any links given no longer work please refer to the Church of England website.

20 Providing Information For Advice

Owners of buildings with turret clocks that wish to obtain advice concerning their turret clock are invited to supply the information detailed below. To see an existing entry on the AHS Turret Clock Group National Turret Clock Database it can be requested from the AHS: http://www.ahsoc.org/ The Church of England's Church Heritage Record: https://facultyonline.churchofengland.org/churches links to the AHS Turret Clock

Group Database, and is a good way to find information about a church turret clock. To update information on a church turret clock, please send details to the AHS.

Some information may not be available, but please supply as much as possible:

Clock Details
Maker
Date
Does it strike the hours
Does it strike the quarter-hours
How many dials

History
Sometimes the history of a clock is known, perhaps written down, on a presentation plate on the clock or elsewhere in the building. This would be useful information.

Photos
Please supply photographs of:
Clock movement general view in tower
Clock movement close up
Dials

The Current Situation
Is the clock working
Does the clock keep good time
Is the clock wound by hand or has automatic winding
Is there a maintenance contract? If so, with who?
Details of any problems currently experienced. If there are issues, then a history of incidents will help
Details of any changes to the building or bells that might affect the clock
Is access easy or do you have to climb ladders

The Preferred Outcome
What is it that you want to achieve? for example, move the clock, install automatic winders, have a restoration, repaint and gild the dials.

Contact Details
Name, telephone number and email of the clock keeper and if in a church the Church Warden would also be helpful.

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Appendix 1

Turret Clocks In The Church of England

Any parish contemplating work on a church clock is advised to consult their DAC Secretary or Archdeacon at an early stage. DAC's usually have a Diocesan Clocks Adviser to assist the DAC in forming its advice to a parish. Consultation with anyone responsible for bells in the tower such as the Tower Captain is also helpful, since some work to clocks can have implications for bells. Where work to the clock and bells is needed both the Diocesan Clocks Adviser and the Diocesan Bells Adviser should be involved at an early stage. Where work on the bells is involved such as an augmentation, the clock must be retained and its place in the scheme worked out by the clocks and bells advisers before a faculty is applied for.

Most routine maintenance and basic repairs do now require a faculty - as List A and List B exemptions to this are now limited to oiling, visual inspection, installation of night-silencing equipment and electrical control devices under the Faculty Jurisdiction Rules which came into effect on 1st January 2016: http://www.churchcare.co.uk/churches/faculty-rules-2015 Any other work will need either an Archdeacon's permission or a faculty which must be in place before work starts. A faculty will involve consultation with the Church Buildings Council and other statutory bodies. The DAC Secretary can provide further advice on the faculty process. Additions to a turret clock such as automatic winding or pendulum correctors will definitely need a faculty before work starts.

It is hoped that the Church Buildings Council will shortly write a guidance note on interpretation of List A and List B exemptions and a link to this guidance note will appear here.

Turret clock firms should obtain and hold on record a copy of any permissions authorizing works to turret clocks before any work starts.

Appendix 2

Service Report Card

Location	Service Date	Maker	Type	Clock Date

	Going Train		Striking Train		Quarter Train
	Inspection		Inspection		Inspection
	Wiped/Checked		Wiped/Checked		Wiped/Checked
	Wheels Brushed		Wheels Brushed		Wheels Brushed
	Oiled/Greased		Oiled/Greased		Oiled/Greased
	Escapement		Fly & Clicks		Fly & Clicks
	Bushes		Bushes		Bushes
	Pinions		Pinions		Pinions
	Winding Click		Winding Click		Winding Click
	Suspension Spring		Countwheel		Countwheel
			Rack		Rack
			Stopwork		Stopwork
			Let-off		Let-off

	Dial Motion Works		Bell Hammers		Weights
	Wheels		Hammers		Weight lines
	Bevels		Check Springs		Fixings/Tie-offs
	Bushes/Pipes		Bell Cranks		Pulleys
	Joints		Pull Wires/S-Hooks		Shaft Clearances

			Dials		
	Integrity of Fixings		Condition of Paint		Condition of Gilding

Comments/Repairs
Name of Firm and Engineer

Service Report Card 1