



Method Statement

Operation of the Line Shaft Driven Bandsaw

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Operation of the Line Shaft Driven Bandsaw

Issue History

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1-3		Versions 1-3 bear no relation to Version 4, which is a new document
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1. Purpose and Scope

- 1 This method statement sets out the instructions that must be followed when demonstrating the use of the belt driven bandsaw (the Bandsaw).
- 2 The method statement also covers the maintenance of the Bandsaw
- 3 The use of the Bandsaw as a machine tool for the routine cutting of wood is not covered as such operations are not permitted (see Section 2.1)
- 4 These instructions give rise to a number of Rules that must be observed if the Bandsaw is to be operated safely. These Rules are appended to this method statement of which they form a part. The Rules are also displayed adjacent to the Bandsaw enclosure.

2. Safety

2.1. Warning and Embargo

- 1 The Society's bandsaw is an item of heritage equipment. Its design is such that it cannot be safely used to carry out a number of the tasks of which it is in principle capable. The Society has however identified a limited range of tasks that can be safely carried out by suitably skilled personnel that allow the versatility of the saw to be demonstrated.
- 2 In view of the level risk associated with the unskilled use of the Bandsaw, the Board has resolved that:
 - a The use of the Bandsaw as a conventional machine tool shall be forbidden
 - b The Head of the Bandsaw Technical Area (HTA)* shall be responsible for ensuring the safe operation of the Bandsaw

* Where these instructions refer to the HTA they shall be deemed to apply to the Head of the Bandsaw Technical Area or an approved person acting on his/her behalf.

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- c Only persons approved by the HTA shall be permitted to demonstrate the use of the Bandsaw.
 - ◇ Such persons are known as 'Proficient Persons'
 - d When the Bandsaw is operated via the hand crank, the crank must be turned by a Competent Person.
 - ◇ Competent persons shall be appointed by the HTA.
 - ◇ Competent persons when hand cranking the saw must wear the appropriate Personal Protective Equipment (see paragraph 8 in Section 4.1)
 - e A person, who has been approved as a Competent Person and has demonstrated his/her competency, may be selected for further training by the HTA.
 - ◇ The training provides persons with the appropriate skills and experience in order that they can discharge the role of a Proficient Person.
- 3 Appropriate Proficient Persons may also operate the Bandsaw in order to carry out necessary Inspection, maintenance and testing.
- 4 The roles of the HTA and those of Proficient and Competent Persons are described in Section 3.
- 5 **Be aware of the severe consequences that could arise from accidentally coming into contact with a moving saw blade.**
 - ◇ The arrangements that are in place to minimize the associated risk are set out in Section 4.2.

2.2. Relationship to other systems / equipment

- 1 The band saw is driven from the line shafting, which in turn is directly connected to the beam engine.
 - ◇ As a consequence, if the band saw is left connected to the line shafting, when the beam engine is started up the saw will start to rotate.
- 2 To allow the beam engine operator to communicate with a person at the Bandsaw two separate communication systems are used. They are:
- a A bell system:
 - ◇ The sounding of the bell indicates that the status of the beam engine is about to change (for example if the engine is running and line shafting is rotating it indicates that the engine is about to stop).
 - ◇ The operation of this system is described in MS04*
 - b An electronic signalling system
 - ◇ This system allows the engine operator to signal his/her intentions and the Bandsaw operator to respond.
 - ◇ The operation of this system is described in MS14†

3. Persons Permitted to Operate the Bandsaw

- 1 The HTA is a suitably qualified and experienced person appointed by the Board to be responsible for the safe operation of the Bandsaw.
 - ◇ The HTA may approve one or more Proficient Persons to carry out any necessary functions of the HTA in the absence of the latter person.

* Method Statement 'Operation and Maintenance of the Beam Engine' MS04

† Method Statement 'Operation of the Beam Engine Electric Signalling System' MS14

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- 2 A Proficient Person is a suitably qualified and experienced person who is certified by the HTA as being capable of safely demonstrating the historic use of the Bandsaw. Such a person must:
 - a Understand and be able to apply the instructions set out in this method statement
 - b Understand and be able to apply the relevant instructions set out in method statements MS04, MS14 and MS15 (See Section 2.2 immediately above and Section 4.1 immediately below)
 - c Be able to explain to a third party why the various instructions are in place
 - d Satisfy the HTA that (s)he has the necessary knowledge and manual skills to demonstrate safely the historic usage of the Bandsaw.
- 3 Where a Proficient Person is additionally required to inspect, maintain and test the Bandsaw, the HTA must satisfy himself /herself that person concerned has the necessary skills and experience to safely carry out these tasks.
- 4 A Competent Person is a suitably qualified and experienced person who is certified by the HTA as being capable of turning the manual hand crank to power the saw. Such a person must:
 - a Understand and be able to apply, insofar as they are applicable to the responsibilities of a Competent Person, the instructions set out in this method statement
 - b Be able to explain to a third party why the various instructions are in place
 - c Be aware of the faults that might arise when the saw is hand cranked and the action that must be taken as and when they arise.
 - d Satisfy the HTA that (s)he has the necessary knowledge to recognize activities carried out by the Proficient Person that are not compliant with the requirements of this method statement.
 - ◇ The ability to advise the Proficient Person in a diplomatic manner is a key part of this role.

4. Instructions

4.1. Operating the Bandsaw

- 1 Prior to demonstrating the use of the Bandsaw the responsible Proficient Person must check the saw blade's tension and alignment and that the saw's bearings have been oiled.
 - a Prior to a steaming day, lubrication is carried out as part of the lubrication of the line shafting*.
 - ◇ If for any reason the machine has not been oiled the Proficient Person must carry out the necessary operation before the machine is used
 - b If for any reason the Bandsaw is not fit for use, the Proficient Person must:
 - ◇ Ensure that the saw's belt drive is on the loose pulley
 - ◇ Ensure that the saw is not used for demonstration purposes by:
 - ⇒ displaying a notice on the saw stating that it must be not used
 - ⇒ locking the door of the safety cage.
- 2 A Proficient Person demonstrating the use of the Bandsaw must ensure that no visitor enters the area inside the safety cage surrounding the Bandsaw.

* For further information see the Method Statement entitled 'Oiling of Line Shafting and Associated Plant, Beam Engine and Waterwheel (Including Inspection of Line Shafting)' MS15.

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- ◇ Where a Competent Person is assisting the Proficient Person by hand cranking the saw it shall be part of his/her responsibilities to assist in the enforcement of this instruction.
- 3 No person shall distract the person operating the saw whilst the blade is in motion.
 - ◇ Where the Proficient Person is demonstrating the use of the Bandsaw as driven from the line shafting, (s)he shall discharge his/her responsibilities by advising spectators of the requirement under this instruction.
 - ◇ Where a Competent Person is assisting the Proficient Person by hand cranking the saw it shall be part of his/her responsibilities to assist in the enforcement of this instruction.
- 4 Climbing on, over, removing or tampering with the safety cage is forbidden.
 - ◇ A Proficient Person undertaking inspection, maintenance and/or testing may if necessary disregard this instruction but before doing so must satisfy him/herself that the proposed variation is necessary and that the associated risk is acceptable.
- 5 The drop down panel of the safety cage shall only be opened when either the Mill's system is not in steam or the beam engine is stopped and the person lowering the panel is in possession of the green 'OK to start' disc.
 - ◇ Possession of this disc transfers control over the operation of the engine to the person holding the disc.
- 6 Only Proficient Persons may demonstrate the use of the saw to cut material.
- 7 Where the saw is to be hand cranked the person turning the wheel must be either a Competent or Proficient Person.
 - ◇ A Proficient Person hand cranking the saw must not be the same person who is demonstrating its use or supervising the training of a Competent Person.
- 8 Hand cranking must be carried out at arm's length by a person wearing the Kevlar sleeve and stout gardening glove, which hang in the work enclosure.
- 9 When demonstrating the use of the Bandsaw the responsible Proficient Person must ensure that his/her hands are at all times kept at least 10cm away from the moving saw blade.
 - ◇ Where a Competent Person is assisting the Proficient Person by hand cranking the saw it shall be part of his/her responsibilities to assist in the enforcement of this instruction.
- 10 **Never use hands to remove off-cuts whilst the saw blade is moving.**
- 11 **The saw blade must not be left running whilst the saw is unattended.**
 - ◇ When the saw is not in use the belt drive must be placed on the loose pulley and the safety cage locked.
- 12 A person demonstrating the use of the Bandsaw must ensure that the working area around the saw is kept clean and tidy
 - ◇ In particular all sawdust and waste materials must be removed before the building is vacated.

4.2. Inspection, Maintenance and Testing of the Bandsaw

- 13 Inspection, Maintenance and Testing of the Bandsaw must only be carried out by Proficient Persons who have additionally been approved by the HTA as having the necessary knowledge, skills and experience to carry out this work.
- 14 Maintenance work on the saw shall only be carried out when the Mill's system is not in steam.

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Rules for the Use of the Band Saw

- 1 **General:** The line shaft driven band saw (the Bandsaw) is a Heritage Machine and is not suitable for use as a normal machine tool.
- 2 The objective of these Rules is to keep the usage of this tool to the minimum consistent with the Society's educational role and to ensure the availability of an adequate number of Proficient Persons. Consistent with this objective:
 - a The Bandsaw may be operated by Proficient Persons to demonstrate to visitors and/or Society Members and Volunteers how the machine was once used.
 - b A Proficient Person, authorised by the Head of the Bandsaw Technical Area (The HTA), may operate the Band Saw for the purposes of maintenance.
 - c The Bandsaw may also be used by a Competent Person, with the explicit approval of the HTA, so that (s)he may gain the necessary skills and experience to become a Proficient Person (see Rule 7).
- 3 The use of the Bandsaw by persons other than those specifically authorised under the terms of Rules 2a – 2c is **forbidden**.
- 4 **No person may use the Bandsaw for any purpose not covered by Rules 2a – 2c without first gaining approval for the proposed usage via a Special Method Statement.**
- 5 All persons using the Bandsaw must comply with the terms of the current version of the relevant Method Statement ('Operation of the Line Shaft Driven Band Saw': MS02)
- 6 **Use of the saw in historic demonstrations**
 - a Historic demonstrations shall only be carried out by Proficient Persons
 - b The wood samples used for this demonstration must be large enough to allow the operator's hands to be at all times no closer to the moving blade than the minimum distance prescribed by the method statement (currently 10cm).
 - c Where the saw is being hand turned, the person turning the handle must be a Proficient or Competent Person
 - ◇ This person must wear the provided Kevlar sleeve and stout glove.
 - ◇ It shall be a part of this Person's responsibilities to ensure that the saw's operator does not accidentally breach the conditions set out in the method statement.
- 7 **Training of operators in the use of the saw**
 - a A person, who has been approved as a Competent Person and has demonstrated his/her competency, may be selected for further training by the HTA or a person acting on behalf of the HTA and approved for this purpose.
 - b During his/her training the Competent Person must be supervised by a Proficient Person present at the saw.
 - ◇ If for any reason the Proficient Person has to leave the site of the saw then the Competent Person must stop using the saw.
 - ◇ If the saw is to be hand cranked the wheel must be operated by a Competent or Proficient Person. It is **not acceptable** for the machine to be cranked by the Proficient Person supervising the training.
- 8 On completion of the necessary training a successful Competent Person may be appointed as a Proficient Person.
- 9 A Proficient Person may revert to the status of a Competent Person at any time.