



# Method Statement

## Operating the Line Shaft Electric Motor

Version	1		
Date	4 May 2016		
Written by:			
	Philip Hawtin		
Reviewed and approved by:			
	Tony Simmons		
Approved for Issue by:			
	Tony Simmons		

# Operating the Line Shaft Electric Motor

## Issue History

Version N°	Date of Adoption	Details of Change Made
1	4/5/2016	Interim version approved for use for a period not exceeding six months whilst the continued need for the removal of the beam engine driving belt is reviewed.

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## 1. Purpose and Scope

- 1 This method statement sets out the instructions that must be followed when starting up, operating and closing down the electric motor that rotates the line shafting in Combe Mill thereby demonstrating how power was once distributed throughout the Mill.

## 2. Safety

### 2.1. Warnings

- 1 The electric motor must only be operated by approved operators or by trainees under the personal supervision of an approved supervisor

### 2.2. PPE

- 1 No specialised PPE is required when operating the line shaft electric motor.

### 2.3. Safety Features and Arrangements

- 1 Electricity is supplied to the motor via a lockable isolating switch mounted just above the control panel in the Blacksmiths' Shop.

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- 2 When the motor is not in use the switch must be left locked in the off position.
- 3 The isolating lock and its key are important safety features:
  - a A correctly used lock prevents the unauthorised switching on of the electrical supply.
    - ◇ **Under no circumstances must the isolating switch be locked in the on position.**
  - b This key, not only allows the electricity supply to be switched on, it also vests control of the safe operation of the line shaft and it's motor in the person holding the key.
    - ◇ The person drawing the key must personally retain its control until either:
      - ⇒ the current key holder passes on the key to another qualified person thereby transferring the responsibility to that person or
      - ⇒ The key holder shuts down the motor in accordance with the instructions in Section 3.3.1: thereby ending his/her period of responsibility.
  - c No person, other than the key holder, may switch the motor on or off save:
    - ◇ In an emergency
    - ◇ With the expressed permission of the key holder.
- 4 If at any stage the motor has to be shut down due to a malfunction, the shut down and the reason for the shutdown must be recorded on the log.
  - ◇ **Whenever an event of any kind is recorded in the log it is essential to provide as much information as is available.**

### 3. Starting, Running and Shutting Down the Motor

#### 3.1. Initial Checks

##### 3.1.1. First Floor

- 1 Collect the relevant keys from the key press. The relevant key ring contains at least three different keys: they are
  - ◇ The key for the lock on the motor's isolating supply switch
    - ⇒ This is the key whose possession indicates that the person holding the key has responsibility for the safe operation of the motor and the line shaft (see paragraph 3 of Section 2.3)
  - ◇ The key that allows the resetting of the emergency shut down switch (see for example paragraph 7 of Section 3.2.1)
  - ◇ At least one key that operates the various temporary security padlocks.
    - ⇒ The locks currently earmarked for this duty are actuated by the same key but this arrangement cannot be guaranteed in the future.
- 2 Confirm that the padlock is in place on the door to the band saw compound
  - ◇ If the lock is missing make the gate secure ideally using a spare padlock from the Foreman's Office.
    - ⇒ If necessary tie the door shut with a piece of rope or wire.
  - ◇ Put the key for any replacement lock's key in the key press.
  - ◇ Report the missing padlock and the action taken via an entry in the log
- 3 Shut and lock the gate in the compound security fence around the belt driven wood lathe using the padlock and chain hanging from the security fence adjacent to the entrance.
  - ◇ If the lock is missing make the gate secure and report the missing lock via the log

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- 4 Visually inspect the various line shaft guards to ensure that they are secure and undamaged and that the belts and shafts are free to rotate
  - ◇ Do not start the motor if any of the guards appear inadequate or the line shaft is obstructed in any way.

### 3.1.2. Ground Floor (Blacksmiths' Shop)

- 5 Ensure that the leather belt that is used to transmit power from the beam engine to the line shaft has been removed.
  - ◇ If the belt has been removed proceed to paragraph 6 immediately below
  - ◇ **If the belt has not been removed the motor must not be started**
    - ⇒ Take the actions in Section 3.3.1 to return the motor and the line shaft to their storage mode. The procedure is then at an end.
- 6 Ensure the belt tensioning arm is in the motor position. if necessary reposition the arm
- 7 Check that the emergency switch is in the on position
  - ◇ The switch is in the on position when the green circle on the switch stem is visible
  - ◇ If necessary, reset the switch by inserting the appropriate key and pulling the switch out.
- 8 Lock shut the gate on the small engine area using one of the temporary locks.
- 9 Ensure that the lock on the guards around the new belt drive system is in place.
  - ◇ If the lock is not in place make the closure secure and record the action taken in the log.
- 10 Visually inspect the various line shaft guards to ensure that they are secure and undamaged and that the belts and shafts are free to rotate
  - ◇ Do not start the motor if any of the guards appear inadequate or the line shaft is obstructed in any way.

## 3.2. Starting and Running the Motor

### 3.2.1. Starting the Motor

- 1 Using the appropriate key unlock the padlock on the motor's isolating supply switch, remove the padlock and turn the switch to the on position.
- 2 Press the green button on the control panel immediately below the on/off switch.
  - ◇ The motor should start.
  - ◇ If it does, go to paragraph 5 in Section 3.2.2
- 3 If the motor fails to start, repeat the checks in paragraphs 6- 8 in Section 3.1.2 .
- 4 If the motor starts: go to paragraph 5 in Section 3.2.2 otherwise
  - ◇ Go to Section 3.3.1 and follow the procedure to shut the motor down and make the system safe.
  - ◇ Report the failure to start via the log
  - ◇ **There are no further actions that an operator can take to try to get the motor operational.**

### 3.2.2. Running the Motor

- 5 Once the motor starts to turn the line shaft observe the moving machinery to ensure that it is running smoothly. Be aware that:

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- a Malfunctions associated with the motor and the line shaft are likely to be accompanied by unusual noises.
  - b Inspections must be made in both the Blacksmiths' Shop and at the first floor level.
    - ◇ The order in which the inspections are made is not critical
  - c If the operation of the motor or the line shaft is causing concern the motor must be switched off and the system left in safe condition in accordance with the instructions in Section 3.3.1.
  - d In an emergency any of the shutdown procedures listed in Section 3.3.3 may be used
- 6 When the motor is running:
- a Try to be on the alert for any unusual noises
    - ◇ The source of any unusual noise must be investigated immediately.
    - ◇ If in doubt shut the system down.
  - b Repeat the inspections set out in paragraph 5 at least hourly.

### **3.3. Shutting Down the Motor**

#### **3.3.1. Normal Shut Down**

- 1 **Be aware that** even if the motor has been shut down as a temporary matter (see Section 3.3.2) the instructions in this Section must still be completed
- 2 Stop the motor and isolate the electricity supply by
  - ◇ Pressing the red stop button on the control panel in the Blacksmith's Shop.
  - ◇ Turning off the isolating switch and inserting and locking the padlock
- 3 Return the operating area to its normal status by
  - ◇ Removing the temporary locks from the gate to the small steam engine and belt driven wood lathe compounds
    - ⇒ Attach each padlock and chain to the fence close by the relevant gate
- 4 Return the keyring and its keys to the key press in the Foreman's Office.

#### **3.3.2. Temporary Shutdown**

- 5 To shut the motor down, press the red button on either the control panel in the Blacksmiths' Shop or the slave controller in the Foreman's Office.
  - ◇ Be aware that when the motor is temporarily shut down it could be restarted by a person fiddling with the buttons on the controller in the Blacksmith's Shop.
- 6 To restart the motor press the green button on the controller in the Blacksmith's Shop.

#### **3.3.3. Emergency Shut Down**

- 7 In an emergency the motor must be switched off by the most appropriate of the following methods:
  - a Pressing the red button on the control panel
  - b Pressing the emergency stop button
    - ◇ Be aware that after the emergency stop button has been pressed the motor cannot be restarted until the switch has been reset using the procedure in paragraph 7 in Section 3.1.2.
  - c Pressing the red button on the slave control panel in the Foreman's Office.

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- ◇ Be aware that, whilst the motor can be stopped from the control panel in the Foreman's Office, it can only be restarted using the control panel on the ground floor using the procedure set out in Section 3.2.1,