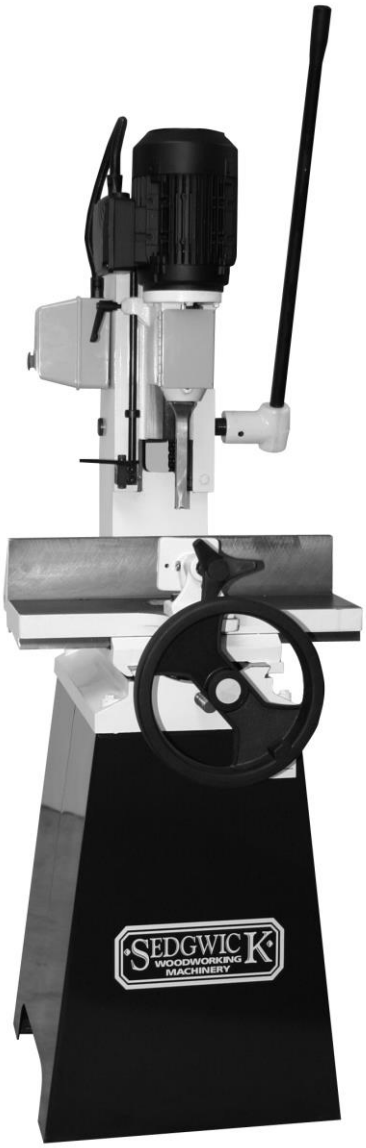
571
HOLLOW CHISEL MORTICER
OPERATION AND MAINTENANCE INSTRUCTIONS



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MACHINE SERIAL NO. 571AA

CE Manufacturers EC Declaration of Conformity

The following machine has undergone 'conformity assessment' and has been self-assessed in accordance with:

Schedule IV of the Supply of Machinery (Safety) Regulations 1992 and Amendment No. 2063

MANUFACTURER'S NAME AND ADDRESS:

M. Sedgwick & Company Limited
Swinnow Lane
Leeds
LS13 4QG
England

RESPONSIBLE PERSON:

Mr G. Sedgwick (Managing Director)

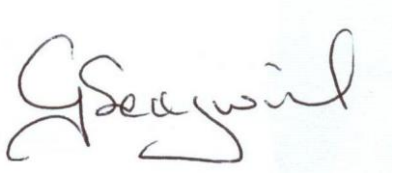
MACHINE DESCRIPTION:

Hollow Chisel Morticer type 571

DIRECTIVES COMPLIED WITH:

Supply of Machinery (Safety) Regulations 1992
Amendment No. 2063 1994
Draught Proposal CEN/TC 142

SIGNATURE OF AUTHORISED REPRESENTATIVE



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Introductory

This Instruction Manual is designed for you in accordance with The Supply Of Machinery (Safety) Regulations 1992, and the Supply of Machinery (Safety) (Amended) Regulations 1994, which implement the European Machinery Directive 89/392/EEC. We strongly recommend that in order to ensure good safe working practise you read it prior to commencing either installation or operation of the machine. Your supplier will be pleased to provide any further advice or assistance that you might require.

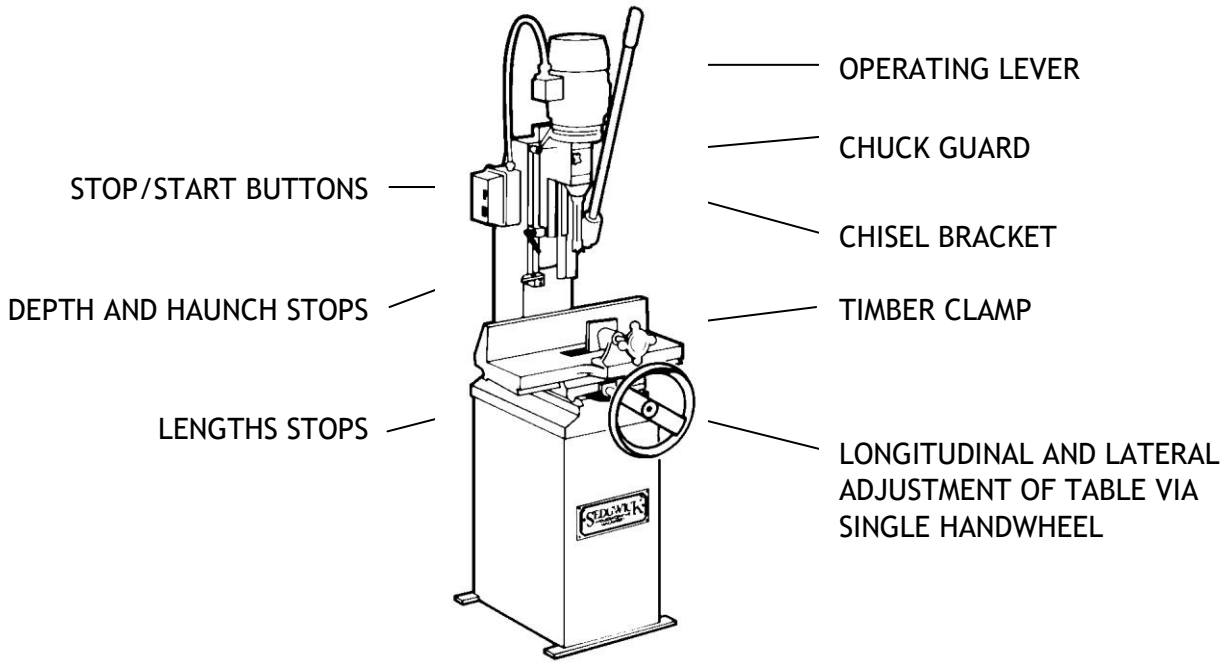
Design and Purpose

The Sedgwick Hollow Chisel Morticer Type 571 is a hand fed machine used for producing square cornered mortice holes of various lengths and widths.

The machine is not designed for any other purposes except as set out above. The operator of the machine shall be solely liable for any damage that results from improper use of the machine.

The machine should not be modified in any way without the written consent of the manufacturer. Please also refer to Section 11.0 regarding use of unauthorised spare parts.

Illustration



1.2 Machine Specification

MAXIMUM CHISEL SIZE - IN HARDWOOD IN SOFTWOOD	19mm 25mm
TIMBER CAPACITY	255x200mm
STROKE OF CHISEL HEAD	120mm
TABLE MOVEMENT -LONGITUDINAL -LATERAL	430mm 80mm
DEPTH STOP	STD
HAUNCH STOP	STD
LENGTH STOPS	STD
VOLTAGE / FREQUENCY	3 PHASE + EARTH; 400/230 V – 50/60 Hz 1 PHASE + N + EARTH ; 230V / 50/60 Hz
MOTOR RATING	1.1Kw
MOTOR FULL LOAD CURRENT IN AMPS	3 PH 2.5A 1 PH 6.6A
STARTING CURRENT IN AMPS	3 PH 15.0A 1 PH 39.6A
REQUIRED FUSE SIZE IN AMPS	3 PH 10A/ph 1 PH 20A
REQUIRED CABLE SIZE	3 PH 2.5mm2 1 PH 2.5mm2

1.3 Shipping Details

DIMENSIONS - Length x Width x Height	735x630x1520mm
NETT WEIGHT	160 Kg
Total Weight, including Packing Crate	221 Kg

1.4 Personal Protective Equipment (PPE)

Operators of the machine should observe Health & Safety guidance as to use of PPE when operating the machine, in particular:

- **Use of protective clothing** e.g. tear-resistant sturdy overalls.
- **Use of protective footwear** e.g. wear safety shoes with protective toes and sturdy grips which are penetration resistant
- **Gloves** – avoid wearing gloves when operating the machine to avoid the gloves getting caught;
- **Hair** - persons with long hair should tie their hair up and wear a hairnet (to avoid the risk of hair being tangled on the machine);
- **Ears** - wear hearing protection such as earplugs or earmuffs to avoid exposure to noise

1.5 Residual Risks

The machine is considered operationally safe when used in accordance with this manual however the following residual risks should be considered and adequate steps taken to ensure such risks are minimised:

- The machine is powered by electricity. Before carrying out any maintenance, cleaning or repair work to the machine, ensure the machine is switched off and cannot be inadvertently switched on again. If work is required on any electrical component of the machine, ensure that the voltage supply is completely isolated. ***Do not remove any safety devices or alter them to prevent them from functioning correctly***.

Electrical energy can cause serious risk to health. Damaged or broken electrical insulation materials (e.g. cabling) or individual components (e.g. the motor/starter) can cause electrical shocks which can cause death.

• Risk of injury from contact with the chisel
• Risk of injury through accidental contact with rotating parts – do not attempt to remove any guarding from the machine during machining
• Risk of injury due to ejected workpieces
• Hearing damage as a result of exposure to high noise levels – take precautions
• Damage to lungs due to the inhalation of dust, which can vary when working with different types of wood/wood with varying moisture content.

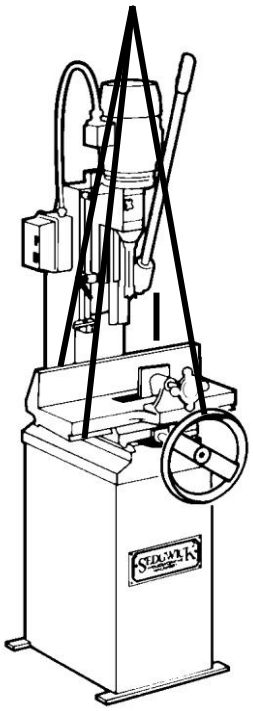
The following section offers a guide to transporting, assembling, and installing the machine. These are all skills that should not be attempted by those who have not received relevant training.

2.0 Machine Handling

The following section offers a guide to transporting, assembling and installing the machine, which should be done following an adequate risk assessment. Movement, adjustment or installation of the machine should not be attempted without proper training in the handling of heavy machinery.

There is a risk of physical injury when moving the machine. The machine could be damaged or written-off if not handled properly during transportation.

Always use a sling or hoisting device equipped with safety hooks within the safe working load of the machine weight. Check the sling is in good condition before starting the handling operation. Machine weights are provided in 1.3 above. Sling underneath either side of the machine table, ensuring that you do not catch the starter etc. Do not walk or stand under the machine during lifting.

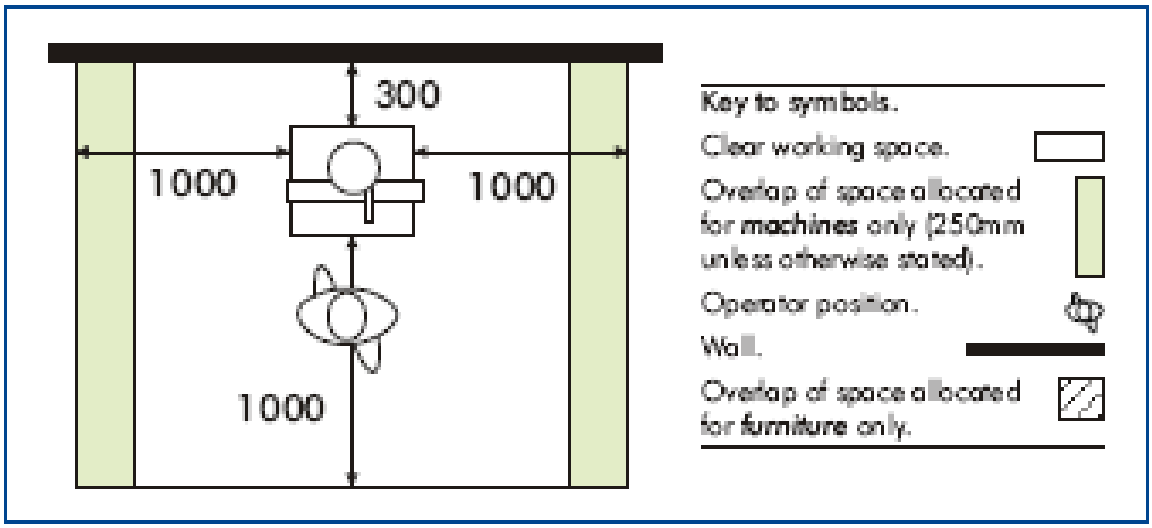


Upon arrival, check that the machine has not suffered any damage during transit. Reuse or recycle any packaging materials, e.g. wooden pallet, and where not possible to do so, dispose of them in accordance with local refuse requirements.

2.1 Positioning

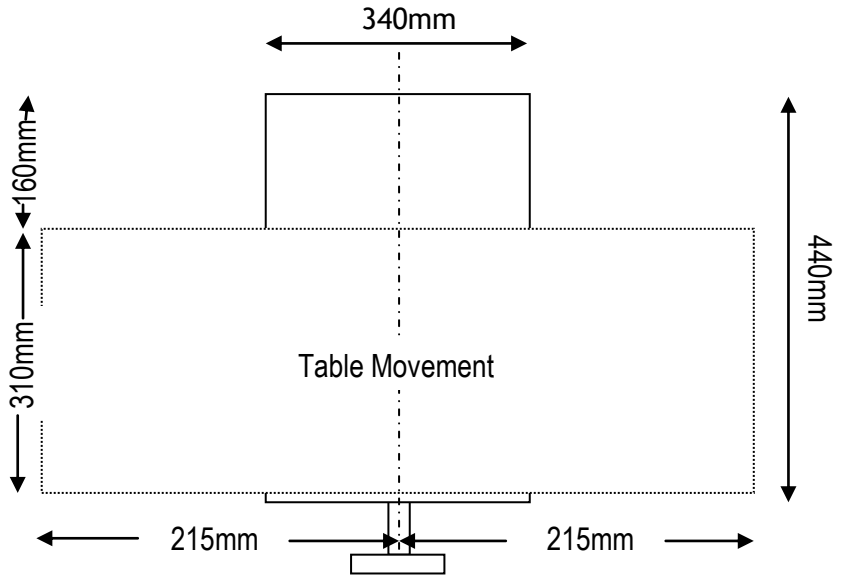
Around every aspect of all woodworking machines there should be clear and unobstructed space to enable the work being done at the machine to be done without risk of injury to operators. Consider the position of the machine, with regard to other fixed equipment and walls.

Safe Working Distances



You must ensure that there is an ample power supply available to operate the machine, together with good lighting and ventilation. Do not operate or store the machine outdoors. Ensure the environment for operating woodworking machinery is kept clean and tidy and damp-free. Only operate the machine in ambient temperatures.

The chosen floor space on which to site the machine should be in good and level condition to enable the machine to be anchored at four points. Holes for M10 foundation bolts (not supplied) are provided in the machine base. Level the tabletop by packing under the feet of the base as required. The following drawing shows a lay-out of the anchor openings:



3.0 Installation

1. Remove the protective rust preventative using turpentine or paraffin. Do not use any solvent, petrol or gas oil, which might dull or oxidise the paintwork. Lightly oil cleaned surfaces to prevent rusting.

2. The counterbalance weight is fastened to the inside of the machine stand for transport purposes and should be released prior to operation. Remove the bolt at the rear of the stand whilst at the same time exerting downward pressure on the operating lever, this will enable the weight to drop safely into its operating position.

3. Take the oil nipples from the toolkit and insert them into the two M8 tapped holes at the centre of the rear of the column.

4.0 Electrical Installation

Electrical wiring should be carried out by a competent electrician following the directions given below. Reference should be made to the appropriate wiring installation rules, e.g. in the UK the 16th edition of the IEE Wiring Regulations for Electrical Installation (BS7671).

- The motor and starter have been wired in at the factory and tested before despatch. All that is required is to connect the power supply to the starter from your isolator.
- Check that the supply details on the motor plate correspond with the site supply.
- It is important that the correct cable size is used to avoid a voltage drop at the motor terminals. If the motor is operated on a voltage outside, plus or minus 6% of the spot voltage, then premature failure will occur.
- It is important to check rotation of the motor which should be clockwise when viewed from above the machine.

Should you encounter problems on start up check for the following likely causes:

PROBLEM	LIKELY CAUSE	CORRECTIVE ACTION
Fails to start	Main supply switched off	Check main switch
	Overload tripped	Reset overload
	Fuse blown	Check and replace fuses (check all three on three phase)
	Loose wire	Check all connections
	Coil failure	Check circuit of hold in coil
Overload trips during starting	Low voltage	Check supply-voltage both on no load and on moment of switch on. Allowed variation plus/minus 6%
	Low voltage	Check that correct cable size has been used to install the machine. Change if necessary.
	Low voltage	Long runs of cable can cause voltage drop. Check that voltage is not outside the minus 6% tolerance. Re-site the machine nearer supply or increase the cable size to compensate.

	Three phase machines only: 1 fuse blown	It is possible for 3 phase machines to operate with only 2 phases of the supply. This will create an overload situation and will eventually cause premature failure, this is known as single phasing. Check all fuses.
	Machine jammed	Check spindle is free to rotate, clean as necessary.
Slow acceleration	Low voltage	For a motor (particularly a single-phase permanent capacitor motor) to reach its required starting torque a healthy line voltage is essential.

5.0 Switch Gear

5.1 Start / Stop Buttons
The motor is started by pushing the green (power on) button on the starter panel, and stopped using the red (power off) button.

5.2 Circuit Protection
In case of a mains failure the starter is fitted with no volt release protection and will not restart without being switched on again. The starter is also fitted with an overload protection device. An electrical overload occurs where an electric motor is subjected to a greater load than it was designed for. This can be caused by short circuit, by incorrect installation, or by misuse (including poor machine maintenance). The inbuilt breaker will therefore help prevent damage to the motor should such a situation occur. The motor cannot be restarted until the breaker has reset itself.

5.3 Optional Padlockable Isolator
With this switch in the OFF position the machine is effectively isolated from the supply to allow personnel safe access for maintenance or repair work and to prevent dangerous restarts. In order to prevent unauthorised use of the machine the switch can also be secured in the OFF position using a padlock.
To operate the machine, first turn the isolator to the ON position.

5.4 Optional Emergency Foot Operated Stop Switch
This switch is provided for use in emergency situations only. We do not recommend that it is used in lieu of the stop switch on the front of the starter panel. The foot switch, once pressed will remain locked in the off position. To restart the machine it is necessary to release the switch by pulling it towards you.

Controls

THE LEVER — The operating lever used to control the movement of the chisel bracket can be adjusted to suit the height of the operator as follows: Loosen the M8 allen screw in the lever boss, slide the bar into the correct position and re-tighten.

CHISEL HEAD — The chisel bracket can be adjusted to suit the size of the work piece as follows:
Isolate the machine. Open the chuck guard, manually support the chisel bracket, and slacken the 24mm AF hexagon nut inside the head with the spanner provided. Position the chisel bracket to the required height, re-tighten the hex nut and close the chisel guard.

TABLE CLAMP — The workpiece clamp can be secured in any position along the tee slot using the locking lever provided. Its face is pre-drilled to accept a wooden pad to help prevent possible marking of the workpiece.

TABLE MOVEMENT — The table has both longitudinal and lateral movement, controlled by the single handwheel. Push in and turn for lateral adjustment, pull out and turn for longitudinal movement.

MORTICE DEPTH — The depth of mortice is controlled by pulling the haunch stop lever towards the operator and adjusting the collar on the stop rod to the required depth.

Note: When cutting a deep mortice it is advisable to take the chisel down in stages of about 25mm, moving the table along for each successive cut. This enables the chisel to clear itself of chips, and avoids subsequent overheating, particularly when cutting hard or green wood. DO NOT OVERLOAD. The motor switch is fitted with a thermal overload cut-out, and if the motor is overloaded will automatically switch it off. If this occurs, check the rotating parts are running freely, and lubricate if required. If all is free then it may be necessary to reduce drilling pressure slightly, i.e. operate at a lower rate of feed.

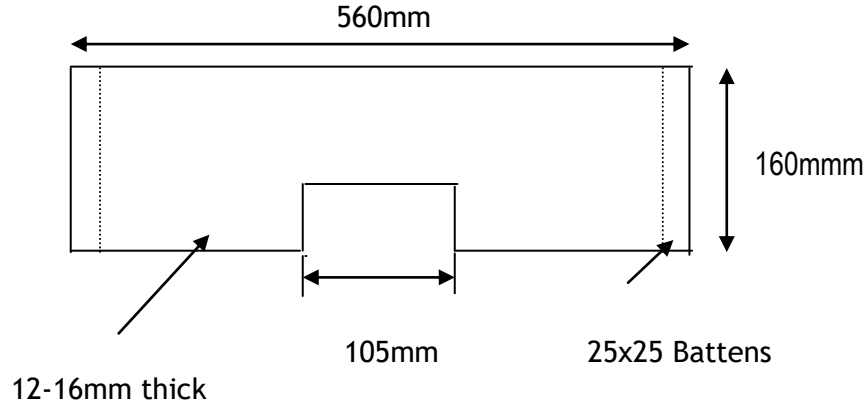
SETTING OUT FENCE — In order to set the position of the mortice in relation to the end of the timber the turnover stop can be adjusted either side of the table.

Note: Long or heavy timbers should be supported off the table.

MORTICE LENGTH — The length of mortice may be controlled using the two length stops on the bar at the front of the table.

Preparation for Use

Before commencing any work on this machine it is recommended that a wooden sub table is made as illustrated below:

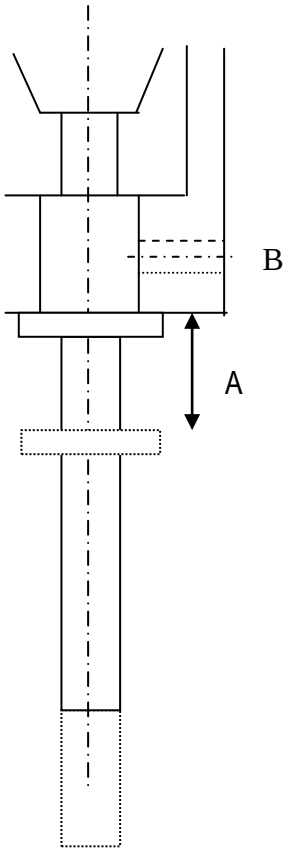


Setting Up For Hollow Chisel Mortising

SEQUENCE:

1. Ensure that the machine is electrically isolated.
2. Select the correct size of chisel and auger, together with chisel bush, spanners and allen key.
3. Check that the chisel and auger have been correctly sharpened and are in good condition, i.e. that the chisel is free from cracks and damaged points, and that the auger and cutting edges are in good condition.
   Following the guidelines below fit the chisel and auger in the chisel bracket.

- Insert auger (with chisel slotted onto it) into the adjustable chuck to its uppermost limit and tighten in place, the chisel will then rest upon the wings of the auger in position as shown in dotted image.
- Measure dimension 'A' carefully, then remove the auger and shorten its shank end by a distance 1mm less than dimension 'A' measured.
- Insert chisel into the chisel socket until the chisel shoulder butts firmly up to the underface of the chisel socket and lock screw 'B'.
- Insert auger once more to its uppermost limit. Its scribing wings should be found to clear the chisel internal cutting bevel by the distance allowed. Finally, tighten the auger and the machine is then ready for cutting.
  Note: the lower point on the bit must clear the bottom point of the chisel and not rub against the chamfer. It is advisable to file a flat on the chisel to enable the locking screw to grip firmly and not burr the shanks, making removal difficult. Always ensure the chip relief in the chisel is left to right and not front to back and always cut away from the relief to ensure good chip ejection.
- The chisel should be mounted with its chip ejector slots facing along the workpiece. Rotate the auger by hand to check that it runs freely without rubbing

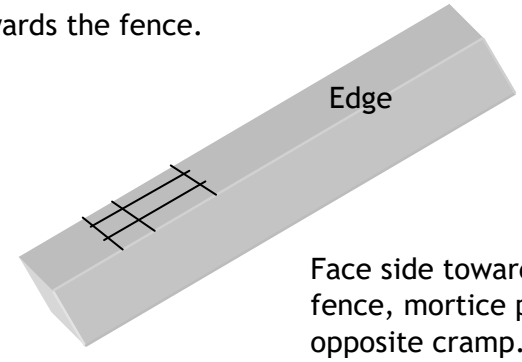


5. Clear all tools from the machine and position the clamp as previously described.
   Move the headstock down to the workpiece, to check the alignment of the chisel with the mortice position. Set the depth stop.
6. Return the lever to the rest position. Switch on the isolator.
7. Switch on the machine and cut a trial mortice.
8. Check the mortice for position, depth and finish.

Note. A squirt of oil along the length of the auger will reduce the noise it emits when running.

Morticing Hard and Soft Woods

1. Keep the face side towards the fence.



2. Position the mortice to be cut opposite the clamp. This prevents the chisel lifting the wood away from the table, which would occur if the mortise were too far away from the clamp.

3. Turn the workpiece ‘end to end’. This ensures that the face side is kept towards the fence when cutting through mortise.

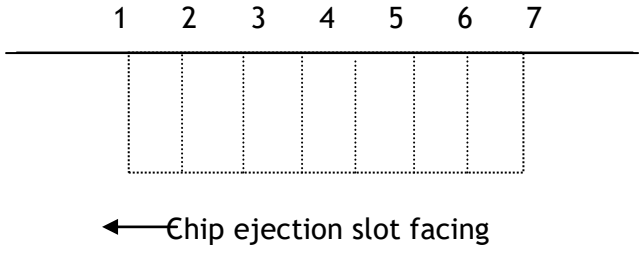
4. Work from both sides when cutting through mortises, as breakout on the back-edge could occur if the chisel was taken right through. Set the chisel depth stop to enable just about a half of the depth of mortise to be cut from each side.

5. Position the chisel about 25mm above the workpiece when the lever is in the rest position by positioning the chisel bracket. This avoids unnecessary long movements of the headstock lever, and reduces the effort required to produce a mortise.

6. The chuck guard must be in position.

7. Make a gradual cut when using the chisel. Remember that on the first cut all four sides of the chisel are enclosed by the timber, making withdrawal of the chisel from the workpiece difficult.

Order of Morticing



8. Do not traverse the table when the chisel is in contact with the bottom of the mortise, as this could damage the auger and strain the mortise chisel.

9. In the interests of ease, for an extended life of mortise chisels, and for speedy working, it is preferable to use sharp but shallow strokes on the handle, i.e. about 25mm deep for softwoods, and 12mm deep for hardwoods. This applies particularly to wet or abrasive timber.

Faults Diagnosis

FAULT	CAUSE	REMEDY
Cuts out of square	Chisel is not square to fence	Square the chisel to the fence
Uneven bottom to mortise	Auger too far in advance of the chisel	Reposition the auger
Chisel end blued and cracked	auger rubbing against the auger edge, causing over heating	Reposition the auger, regrind, or replace the chisel
Chisel becomes hot near centre	Bent auger	Straighten or replace the auger
Chippings build up inside chisel	Bad clearance. The auger spiral does not extend far enough, or resinous timber is gumming up the inside of the chisel	Remove the auger and clean with paraffin periodically

Limitations of Use and Safe Working Practices

Training and instruction is a central requirement of the Provision of Work Equipment Regulations 1998 (PUWER). No morticing machine can be operated by any person under the age of 18 without them having first completed an approved course of training. The regulation does realise that young persons may need to operate one of these machines as part of a course, and such use is permitted provided that it is carried out under the supervision of a person who has thorough knowledge and experience of the machine and of its safeguarding requirements.

It is essential that all operators of morticing machines are adequately trained in the use, adjustment and operation of the machine, this covers in particular:

- The dangers associated with the operation of the machine;
- The principles of machine operation, correct use and adjustment of the controls;
- The safe handling of the workpiece when cutting;
- The position of the hands relative to the cutters and the safe stacking of the workpiece before and after cutting.

Under no circumstances should anyone operate the machine while under the influence of drugs, alcohol or any medication which may render them drowsy.

Persons who install this machine for use at work have a duty under the Health and Safety at Work Act 1974 to ensure, as far as is reasonably practicable, that nothing about the way in which it is installed makes it unsafe or a risk to health at any time during setting, use, cleaning, and maintenance. This includes such aspects as correct assembly, electrical installation, construction of enclosures, and the fitting of guards and ventilation equipment. When installing

this machine consideration must be given to the provision of adequate lighting and working space.

Repairs and maintenance must only be undertaken by competent technicians. Ensure that all power supplies are isolated before maintenance work begins. Instructions for routine maintenance work are also included in this manual.

Health and Safety Advice

Dust

Wood dust can be harmful to health by inhalation and skin contact and concentrations of small dust particles in the air can form an explosive mixture. These concentrations usually occur in dust extraction equipment which may be destroyed unless explosion precautions have been taken in the design and installation of the equipment.
Employers have duties under the Factories Act 1961, The Health And Safety At Work Act 1974 and the Control Of Substances Hazardous To Health Regulations 1988 to control wood dust in the workplace.
Employers should carry out an adequate assessment of the possible risks to health associated with wood dust particularly when machining hardwoods, and if necessary seek expert advice as to the method of dust extraction.
Prevention or control of wood dust exposure should as far as is reasonably practicable, be achieved by measure other than the provision of personal protective equipment.
Further information and references to practical guidance are contained in free leaflets from the Health & Safety Executive, alternatively specialist help and information can be obtained from:

P&J Dust Extraction
Extraction House, Otterham Quay, Rainham, Kent ME8 8NA
Tel. 0163 423 3933 Fax. 0163 423 4588

Noise

Noise levels can vary widely from machine to machine depending on conditions of use. Persons exposed to high noise levels, even for a short time, may experience temporary partial hearing loss and continuous exposure to high levels can result in permanent hearing damage. The Woodworking Machines Regulations require employers to take reasonably practicable measures to reduce noise levels where any person is likely to be exposed to a continuous equivalent noise level of 90 dB(A) or more over an 8 hour working day. Additionally, suitable ear protectors must be provided, maintained and worn.
Machines identified as generating unhealthy noise levels should be appropriately marked with a warning of the need to wear hearing protection and it may be necessary to designate particular areas of the workplace as ‘Ear Protection Zones’. Suitable warning signs are specified in the Safety Signs Regulations 1995. It may be necessary to construct a suitable enclosure, in which professional advice should be sought.
Further information and references to practical guidance are contained in free leaflets available from The Health & Safety Executive.

The list below outlines some of the variables that directly affect the noise level of the machine:

VARIABLE	RELEVANT FACTOR	EFFECT
Timber	Species	Hard stiff timber can mean more noise (approx. 2dB(A) difference when cutting oak and pine) & more transmitted noise.
	Width	Wide work pieces radiate noise over a greater area increasing the noise level.
	Thickness	Thin workpieces generally vibrate more increasing the noise level.
	Length	Long workpieces transmit noise away from the cutting area towards the operator.
Tooling	Width of Chisel	Noise increases roughly in proportion to the width of cut.
	Tool Sharpness	Dull ands worn cutters tend to chatter.

The following noise levels were recorded at a distance of one metre from the machine (operator side) with a combination block fitted, using varying feed rates and depths of cut.

OPERATION	NOISE LEVEL dB(A) @ 1M
None	67
Cutting	70

The figures quoted for noise are emission levels and not necessarily safe working levels. Whilst there is a correlation between emission levels and exposure levels, this cannot be used reliably to determine whether or not further precautions are required. Factors that influence the actual level of exposure to the work force include the duration of exposure, the characteristics of the workroom, the other sources of dust and noise, etc., i.e. the number of machines and other adjacent processes. Also the permissible exposure levels can vary from country to country. This information, however, will enable the user of the machine to make a better evaluation of the hazard and risk.

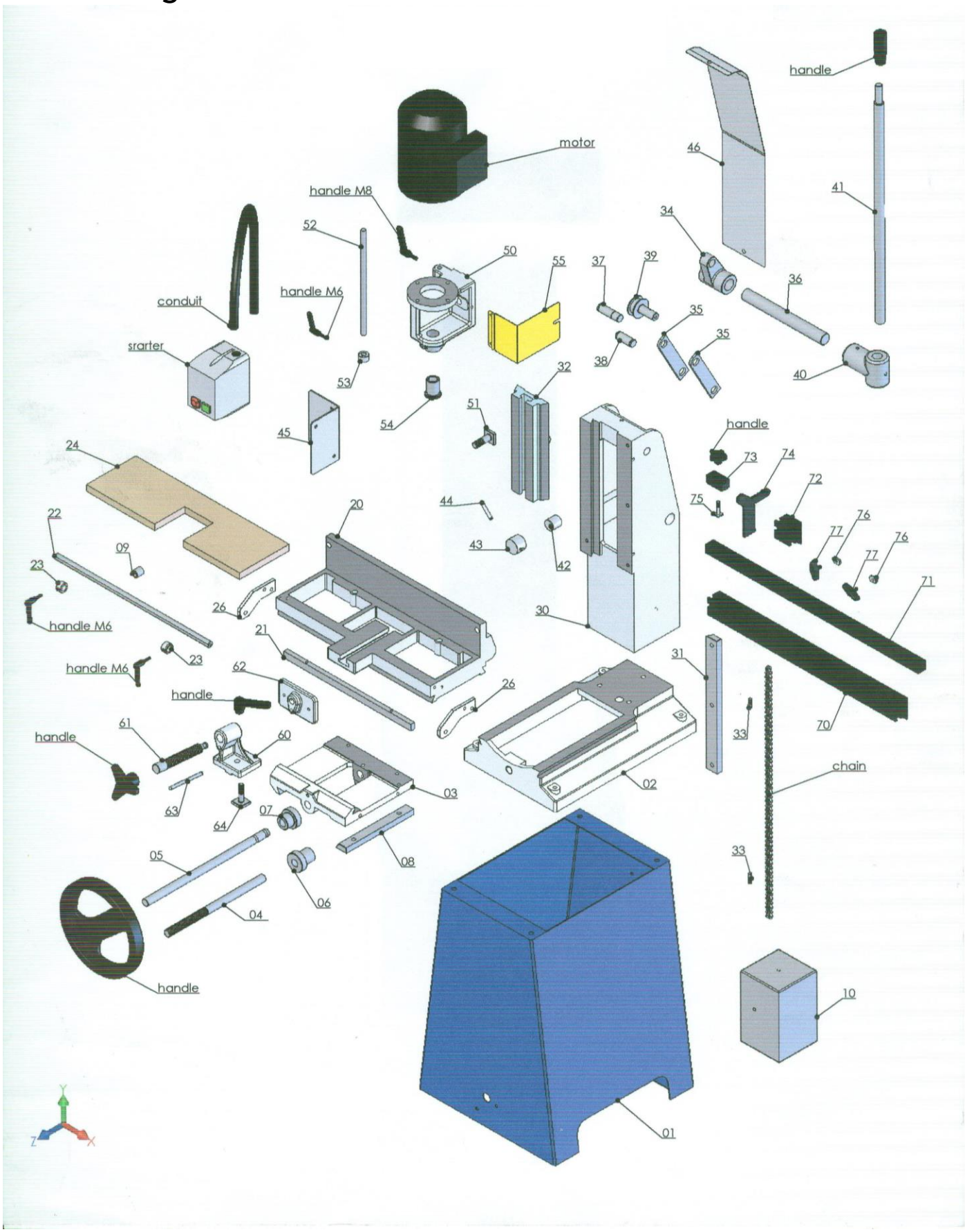
Maintenance and Lubrication

Electrically isolate the machine and ensure that all spindle movement has ceased before carrying out any maintenance operation.

Since your morticer is constructed of cast iron, which is a porous metal, care should be taken when cleaning. Use mineral spirits and steel wool on all metal parts. Avoid contact with anything moist. Don't set drinks on the tabletop, or leave green wood on it. These will leave permanent marks.
Waxing the table surface will help resist moisture. Avoid products that contain silicone, anti-slip additives, or abrasives.
Clean the interior of the machine stand frequently to prevent the accumulation of chips and sawdust.
Once clean, lubricate moving parts using a lubricant that does not pick up a lot of sawdust. Pay particular attention to the slides, operating screws and oil nipples (for the oil nipples use a grease gun filled with oil). Powdered graphite, hard wax or white lithium sprays are ideal. Do not use an oil-based product. These will collect sawdust and congeal into a gummy substance, making working parts hard to operate.

Should, after long use, the tables or headstock develop a degree of side play, this can be rectified by slackening slightly the retaining bolts on the slide concerned, and tapping the slide until side play is eliminated, but taking care not to interfere with normal movement. Tighten retaining bolts firmly after adjustment.

Parts Diagram



Parts List

Base & Cross Slide Assembly
- 571-01 STAND PTD DK BLUE
- 'SEDGWICK' LOGO SCL027
- 571-02 BASE
- 571-03 CROSS SLIDE
- 571-04 CROSS SLIDE SCREW
- SPRING COMP 8DIA X 25
- STEEL BALL DIA 5/16INS
- 571-05 HANDWHEEL SHAFT
- HANDWHEEL DIA 250
- 571-06 GEARCUT PINION LONG
- 571-07 GEARCUT PINION SHORT
- 571-08 CROSS SLIDE VEE STRIP
- 571-09 LENGTH STOP
- 571-10 WEIGHT
- CHAIN 69 PITCHES EX CONN
- CHAIN CONNECTORS

Table Assembly
- 571-20 TABLE
- 571-21 GEARCUT RACK
- 571-22 LENGTH STOP SHAFT
- 571-23 LENGTH STOP COLLAR
- LOCKING LEVER M6X12
- 571-24 TABLE WOOD
- 571-25 TABLE VEE STRIP
- 571-26 LENGTH STOP SUPPORT

Column Assembly
- 571-30 COLUMN
- 571-31 COLUMN VEE STRIP
- 571-32 CHISEL HEAD SLIDE
- 571-33 ANCHOR PINS
- 571-34 CAM LEVER
- 571-35 LINKS
- 571-36 CAM SHAFT
- 571-37 LINK PIN TOP
- 571-38 LINK PIN BOTTOM
- 571-39 BALANCE PULLEY
- 571-40 LEVER BOSS
- 571-41 LEVER
- HANDLE I.580/90 N-16
- 571-42 DEPTH STOP POST
- 571-43 DEPTH STOP CAP
- 571-44 DEPTH STOP LEVER
- HANDLE I.580/40 N-8
- 571-45 STARTER BRACKET
- 571-3 STARTER 415/3/50
- 571-1 STARTER 230/1/50
- 571-46 COLUMN COVER

Chisel Head Assembly
- 571-50 CHISEL HEAD
- MOTOR 1.1KW 3000RPM FLNG MOUNT 3ph
- MOTOR 1.1KW 3000RPM FLNG MOUNT 1ph
- CHUCK ADJUSTABLE 0-13MM
- CHUCK KEY
- 571-51 TEE BOLT
- SPANNER 24MM SINGLE END
- 571-52 DEPTH STOP SHAFT
- 571-53 DEPTH STOP COLLAR
- LOCKING LEVER M8X20
- 571-54 CHISEL BUSH
- 571-55 CHUCK GUARD PTD YELLOW

Clamp Assembly
- 571-60 CLAMP BRACKET
- 571-61 CLAMP SCREW
- THREE ARM KNOB DIA 16
- 571-62 CLAMP PAD
- 571-63 CLAMP PAD STEADY
- 571-64 CLAMP TEE-BOLT
- LOCKING LEVER M12

Setting-Out Attachment Assembly
- 571-70 Setting Out Rail
- 571-71 Setting Out Rail Inner
- 571-72 Setting Out Rail Extn Pce
- Wingnut M8x16
- 571-73 Turnover Stop Body
- 571-74 Turnover Stop
- 571-75 Tee-Bolt
- 571-76 Loose Nut

Machine Identification

Your machine has an individual serial number stamped on the top surface of the rear wall of the table. This number can also be found on the front cover of this manual. Always quote your serial number when applying for spare parts etc.