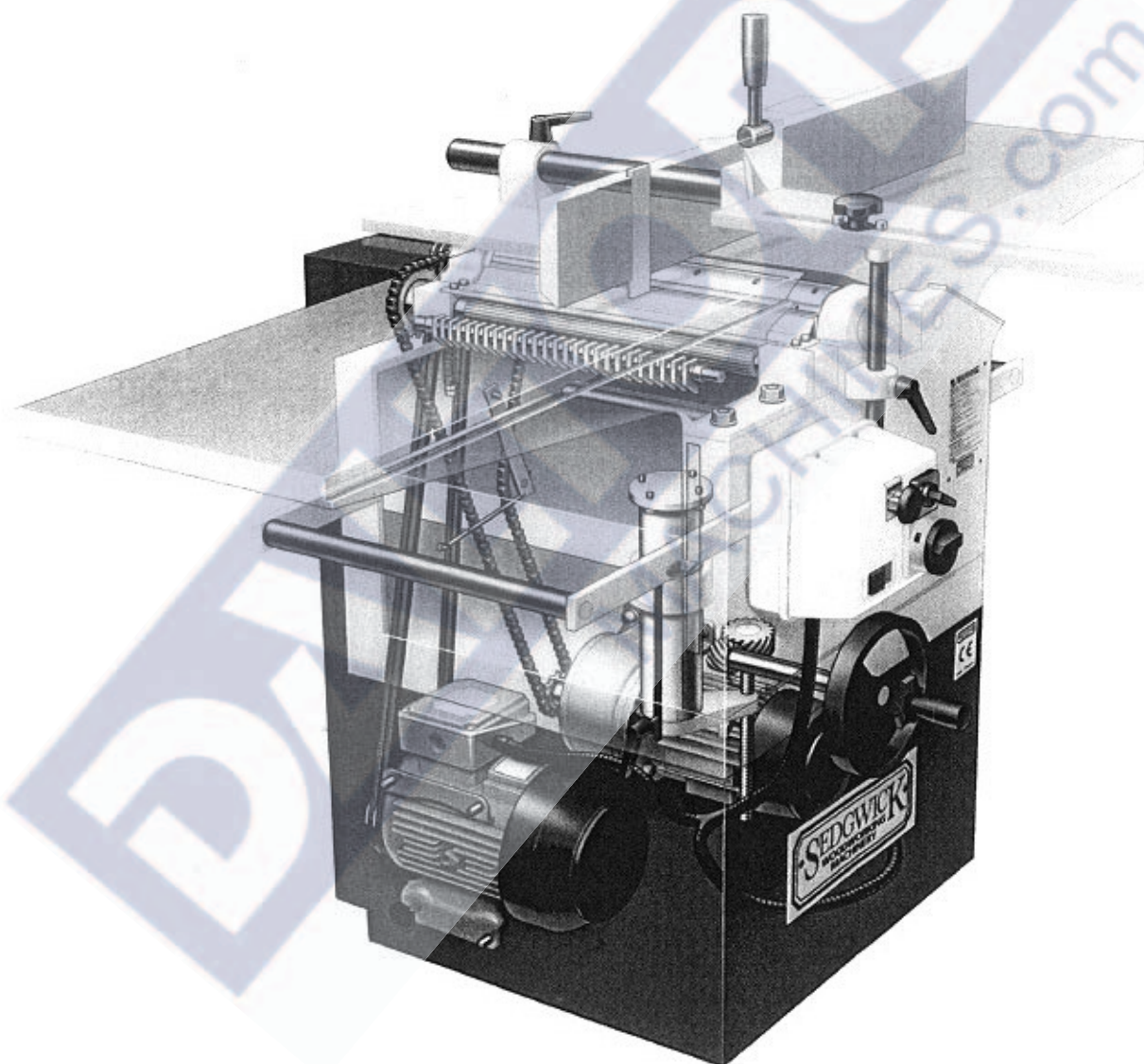




MB/CP
PLANER THICKNESSER
OPERATION AND MAINTENANCE
INSTRUCTIONS



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MACHINE SERIAL NO.



Declaration of Conformity 93/44/EEC

MANUFACTURER'S NAME AND ADDRESS:

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Swinnow Lane
Leeds
LS13 4QG
England

PRODUCT DESCRIPTION & TYPE

Planer Thicknesser types MB & CP

NAME AND ADDRESS OF EC TYPE EXAMINATION BODY

A.E.A. Technology
Risley
Warrington
WA3 6AT
ENGLAND

CERTIFICATE NUMBER

0466/94/7-5

SIGNATURE OF AUTHORISED REPRESENTATIVE

A handwritten signature in black ink, consisting of stylized initials and a surname, is written over a horizontal line. Below the signature, there is a second horizontal line.

List of Contents

1.0 Design and Purpose
1.1 Illustration
1.2 Machine Specification
1.3 Shipping Details
2.0 Handling Instructions
2.1 Positioning
2.2 Foundation Drawings
3.0 Connection to a Dust Extraction System
3.1 Chip Extraction Hood
4.0 Electrical Installation
5.0 Switchgear
5.1 The Padlockable Isolator
5.2 Start/Stop Buttons
5.3 Two/Three Position Rotary Switch
5.4 Circuit Protection
5.5 Brake Release Switch
5.6 Optional Emergency Foot Operated Stop Switch
6.0 Guarding
6.1 The Front Cutterblock Guard
6.2 The Rear Cutterblock Guard
6.3 The Rear Drive Guard
6.4 The Anti Kickback Fingers
7.0 The Cutterblock / Knife Changing
7.1 The Optional TERSA Monobloc
8.0 Preparation of the Workpiece
8.1 Pilot Checks
9.0 Surface Planing
9.1 Flatting
9.2 Planing Wide
9.3 Bowed Boards
9.4 Edge Planing (Squaring)
9.5 Bevelling or Chamfering
9.6 Rebating
9.7 Push Blocks and Push Sticks
10.0 Thicknessing
11.0 Diagnosing Faults in Planing
12.0 Limitations of Use and Safe & Working Practices
12.1 Noise Reduction
12.2 Warning Labels
13.0 Maintenance
13.1 Lubrication
13.2 Cutterblock & Bearings
13.3 Vee Belt and Pulleys
13.4 The Feed Rollers
13.5 Planer Tables
13.6 The Fence
14.0 Parts Illustration
14.1 Parts List
15.0 Wiring Diagrams

Introduction

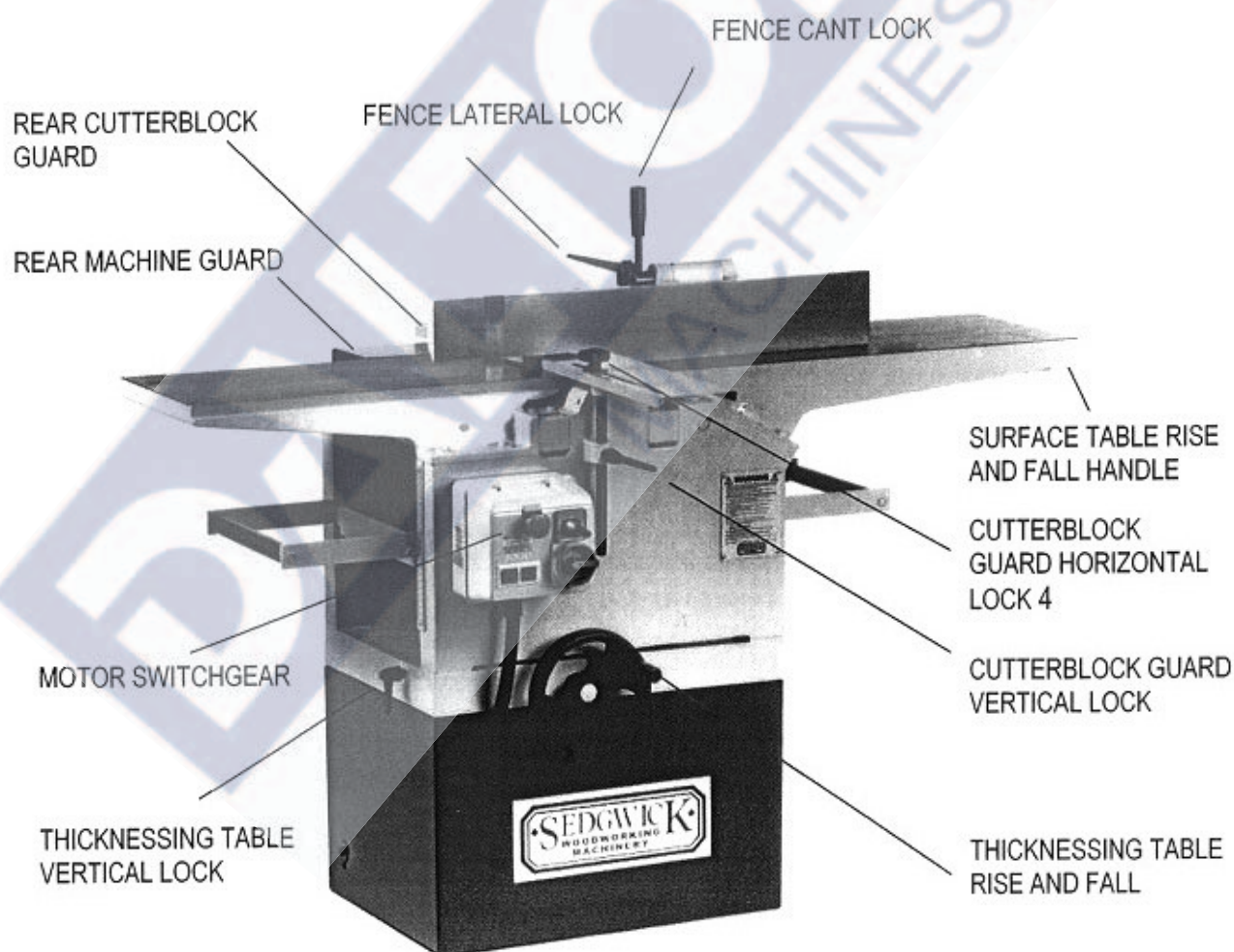
This Instruction Manual is designed for you in accordance with The Supply of Machinery (Safety) Regulations 1992, and the Supply of Machinery (Safety) (Amended) Regulations 1994, which implement the European Machinery Directive 89/392/EEC. We strongly recommend that in order to ensure good safe working practise you read it carefully prior to commencing either installation or operation of the machine.

1.0 Design and Purpose

The MB/CP Planer Thicknesser is a dual-purpose machine designed to plane wood and similar materials by means of a horizontally rotating cutterblock. When surfacing, the workpiece is passed over the top of the cutterblock and the lower surface is planed. The infeed table of the surface-planing unit is adjustable in height. When planing material to a set thickness, the wood is passed underneath the cutterblock, supported by the thickening table, and the top surface is planed.

The following operations can also be performed on the machine, and guidelines on how these should be performed safely are provided in this manual: flattening, edging, chamfering, bevelling, and rebating.

1.1 Illustration



1.2 Machine Specification

	MB	CP
SURFACE CAPACITY	308 mm	410 mm
THICKNESSING WIDTH	308 mm	410 mm
THICKNESSING DEPTH	230 mm	230 mm
REBATING DEPTH	16 mm	16 mm
SURFACE TABLE LENGTH	1500 mm	1700 mm
INFEED TABLE LENGTH	850 mm	850 mm
SURFACE TABLE HEIGHT	900 mm	900 mm
THICKNESSING TABLE LENGTH	600 mm	600 mm
TABLE LENGTH OVER EXTN ROLLERS	1000 mm	1000 mm
CUTTERBLOCK DIAMETER	102 mm	102 mm
CUTTERBLOCK KNIVES	3 Std (4 TERSA)	3 Std (4 TERSA)
CUTTERBLOCK SPEED	4000rpm	4000 rpm
FEED ROLLER DIAMETER	51 mm	51 mm
FEED SPEEDS	3 PHASE 4.5 & 7 m/min 1 PHASE 6 m/min	3 PHASE 4.5 & 7 m/min 1 PHASE 6 m/min
FENCE SIZE	750 x 120 mm	900 x 140 mm
TILTING ANGLE OF FENCE	0° – 45°	0° – 45°
CHIP EXTRACTION OUTLET DIA.	125mm	150mm
VOLTAGE / FREQUENCY	3 PHASE + EARTH ; 400/230 V – 50/60 Hz 1 PHASE + N + EARTH ; 230V / 50/60 Hz	
CUTTERBLOCK MOTOR RATING	3 PHASE 3.0 Kw 1 PHASE 2.2 Kw	3 PHASE 4.0 Kw 1 PHASE 3.0 Kw
FEED MOTOR RATING	0.375 Kw	0.375 Kw
MOTOR FULL LOAD CURRENT IN AMPS	3 PH C'BLOCK 6.5A 1 PH C'BLOCK 14.6A 3 PH FEED 1.5/1.3 1 PH FEED 2.8A	3 PH C'BLOCK 8.0A 1 PH C'BLOCK 16.5A 3 PH FEED 1.5/1.3 1 PH FEED 2.8A
STARTING CURRENT IN AMPS	3 PHASE 39A 1 PHASE 87.6A	3 PHASE 48A 1 PHASE 99A
REQUIRED FUSE SIZE IN AMPS	3 PHASE 20A/ph 1 PHASE 40A	3 PHASE 20A/ph 1 PHASE 40A
REQUIRED CABLE SIZE	3 PHASE 2.5mm ² 1 PHASE 40A	3 PHASE 2.5mm ² 1 PHASE 40A

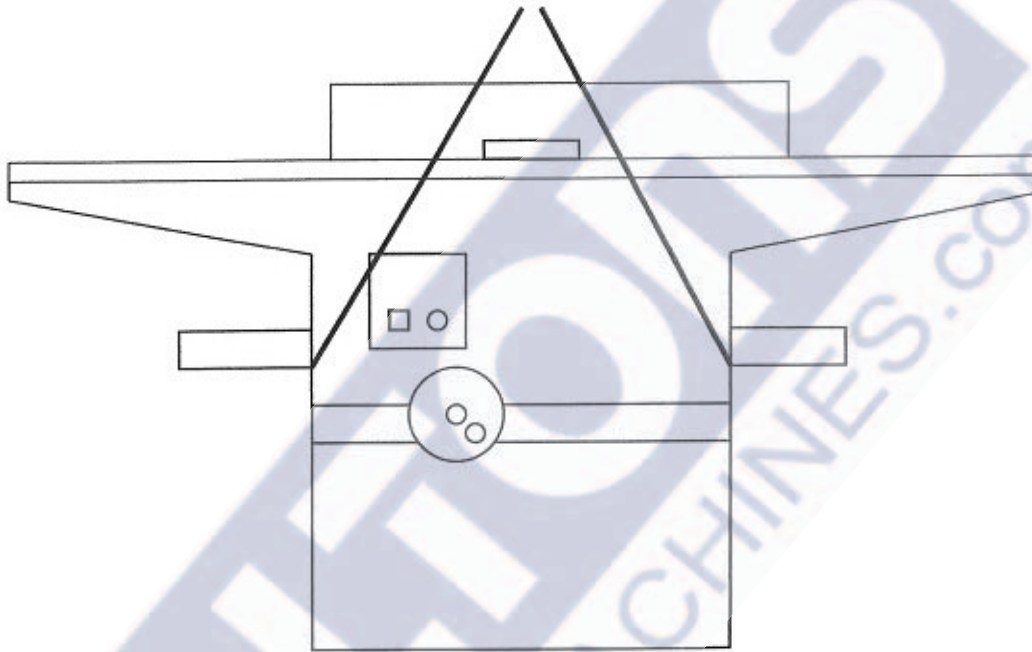
1.3 Shipping Details

DIMENSIONS - Length x Width x Height	1550 x 950 x 1265	1700 x 1050 x 1275
MACHINE WEIGHT	390 Kg	430 Kg
Total Weight, including Packing Crate	500 Kg	560 Kg

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

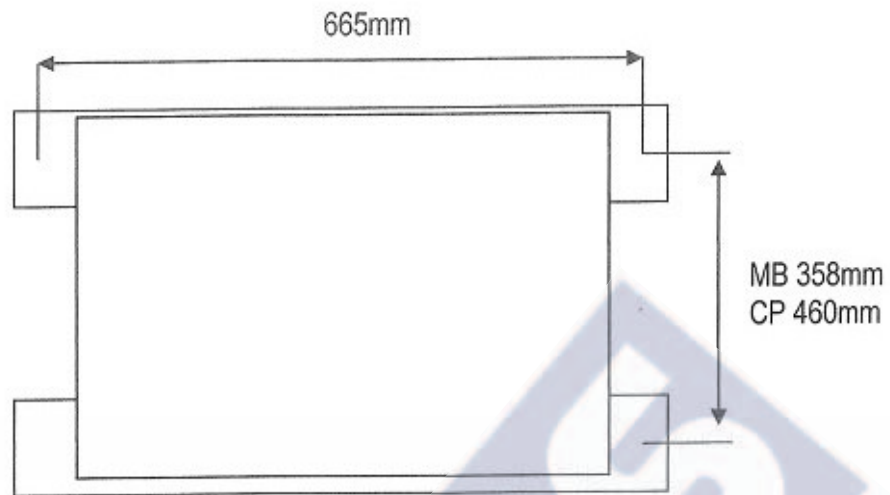
Always use a sling within the safe working load of the machine weight. Machine weights are provided above. Before lifting, place a piece of wood onto the thickening bed, sufficiently long to lock up against the cutterblock (ensure that it does not foul the knives) and both feed rollers. Wind the bed up using the Thickening Rise and Fall Handwheel until the wood is locked firmly in position. Sling underneath the machine's thickness table extension rollers. Do not walk or stand under the machine during lifting.



2.1 Positioning

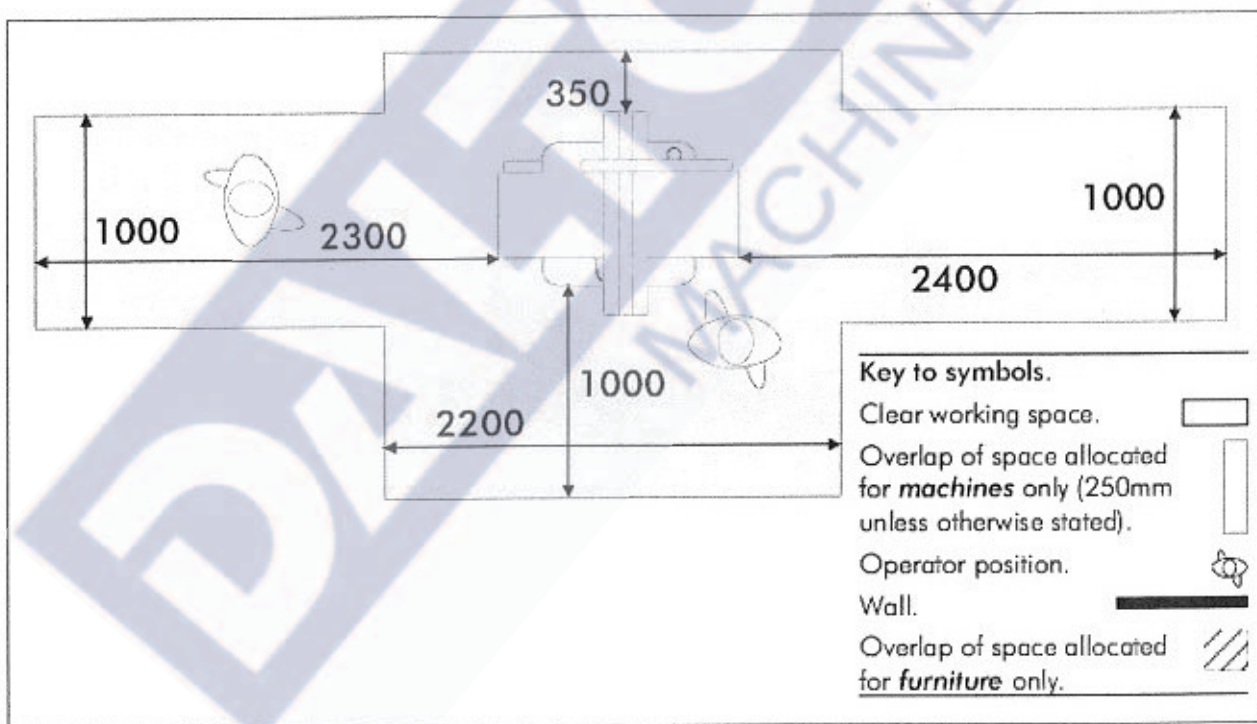
There should be provided around every woodworking machine sufficient clear and unobstructed space to enable the work being done at the machine to be done without risk of injury to persons employed. You must also ensure that there is an ample power supply available, together with good lighting and ventilation.

The chosen floor space 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:



Remove the protective grease 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.

Safe Working Distances



3.0 Connection to a Dust Extraction System

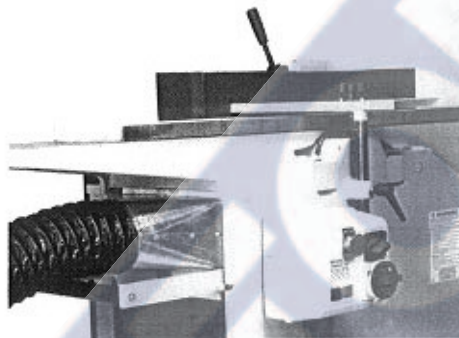
Wood dust can be harmful to health by inhalation and skin contact, and concentrations of small dust particles in the air can form an explosive mixture. Prevention or control of wood dust exposure should as far as is reasonably practicable, be achieved by measure other than the provision of personal protective equipment. Employers have duties under the Provision of Use of Work Equipment Regulations 1998 (PUWER) and the Control Of Substances Hazardous To Health Regulations 1988 to 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.

The minimum recommended air volume required to effectively exhaust this machine at 20m/sec is 1105 CMH for the MB and 1445 CMH for the CP.

3.1 Chip Extraction Hood

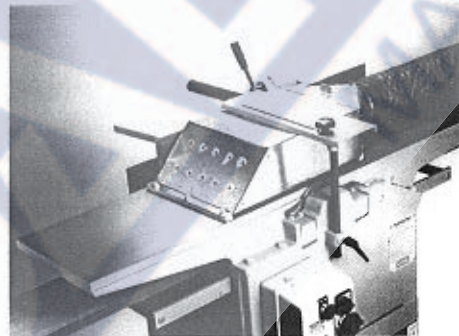
A chip extraction unit is supplied as a standard feature of this machine, and guidance for its use is as follows:

For Surfacing



The hood is designed to sit on the thickening bed, and should be inserted hollow side up, with the exhaust outlet below the fixed outfeed table. The lug on the underside of the hood, attached to the exhaust outlet, should locate against the end of the thickening bed, with care being taken that the anti-kickback fingers are not fouled when the bed is wound up.

For Thickening



Position the fence to the rear of the surfacing table. Place the hood centrally over the cutterblock, hollow side down, with the exhaust outlet pointing toward the in-feed table rise and fall handle. Bring the bridge guard down over the hood and lock it in position between the two welded straps.

The diameter of the connection point is 125/150mm and reducers are not recommended.

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 the following:

P&J Dust Extraction

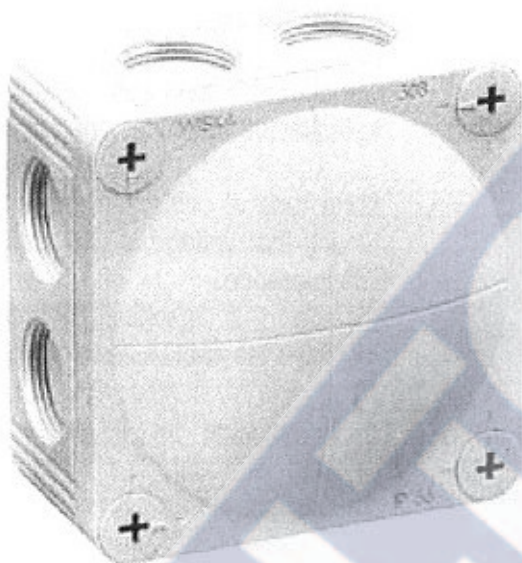
Head Office: Otterham Quay, Rainham, Gillingham, Kent ME8 8NA

Tel: 01634 384100 Fax: 01634 234588 E: info@pjdust.co.uk

4.0 Electrical Installation

All electrical wiring should be carried out by a fully qualified electrician. Please follow these directions when connecting to the mains:

- The motor and control gear have been wired in at the factory and tested before despatch. All that is required is to connect the power supply to the terminal box on the machine stand.
- First check that the supply details on the motor nameplate correspond with the site supply. If the motor is operated on a voltage outside (plus or minus 6%) of the spot voltage, then premature failure will occur.
- Refer to the machine specification sheet at the front of the operator's handbook to establish the correct size of cable required. Undersize cable will lead to voltage drop at the motor terminals.
- Do not attempt to wire single-phase machines into a 13-amp plug socket.



- Ensure that there is no voltage at the supply lead before connecting.
- Unfasten the four quick-release screws on the terminal box lid. Introduce the cable into the box's soft self-sealing diaphragm. Cable glands can be screwed directly into the integrated M20 thread. Connect the three phases and earth to the corresponding clamps on the terminal block, and refasten the terminal box lid.
- It is important to check rotation of the cutterblock which should be clockwise when viewed from the starter side of the machine. If necessary you can change the rotation by swapping any two of the brown wires from the supply side on the terminal block.

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

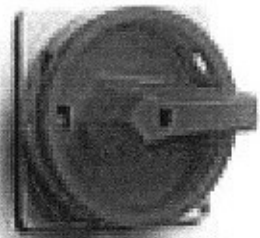
PROBLEM	LIKELY CAUSE	CORRECTIVE ACTION
Fails to start	Main supply switched off	Check main switch
	Overload tripped	Reset overload
	Fuse blown	Check and replace fuses (check all three on three phase)
	Loose wire	Check all connections
	Coil failure	Check circuit of hold in coil
Overload trips during starting	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 The Padlockable Isolator

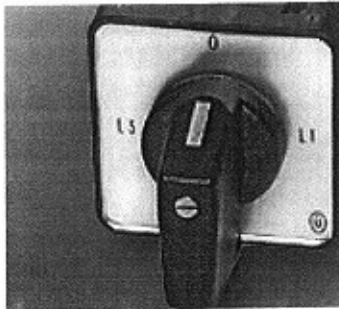
With this switch in the OFF position the machine is effectively isolated from the supply to allow personnel safe access for maintenance or repair work and to prevent dangerous restarts. In order to prevent unauthorised use of the machine the switch can also be secured in the OFF position using a padlock.

To operate the machine first turn the isolator to the ON position.



5.2 Start / Stop Buttons

The cutterblock motor is then started by pushing the green (power on) button on the starter panel, and stopped using the red (power off) button. The mushroom headed lock-off stop switch, once pressed will remain locked in the off position. To restart the machine it is necessary to release the off button by twisting it in a clockwise direction.



5.3 Two/Three Position Rotary Switch

The feed rollers are driven via a separate gearbox motor, which is controlled using the rotary switch below the isolator. A single phase machine has only two positions: ON and OFF. A three phase machine has three:

Position 0 – OFF

Position I – Slow Run (4.5m/min)

Position II – Fast Run (7 m/min)

5.4 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.

5.5 Brake Release Switch

Machines fitted with an electro-magnetic brake unit are also equipped with a 'Brake Release' switch. This switch makes it possible to release the brake mechanism, allowing the operator to rotate the cutterblock when changing or adjusting the cutting knives. To operate the switch first turn the isolator to ON, release the mushroom headed lock off stop switch, and turn the brake release to 'BREAK RELEASE'. It is not possible to start the cutterblock motor with the switch in this position. To start the cutterblock motor turn the switch back to the RUN position.

5.6 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 mushroom headed lock-off stop switch on the front of the starter panel.





6.2 The Rear Cutterblock Guard

To the rear of the fence is mounted a hinged guard which is known as the rear cutterblock guard. This is designed to guard that part of the cutterblock that is on the side of the fence remote from the bridge guard. There is no need for its removal from the fence.

6.3 The Rear Drive Guard

The rear drive guard should only be removed for maintenance and cleaning.

6.4 The Anti Kickback Fingers

The anti kickback fingers are an essential safety feature of the thicknessing function. Their purpose is to drop and lock into the face of the workpiece in the event of kickback, thereby preventing it being ejected from the machine. The movement of the fingers may in time become restricted due to a build up of waste, and their freedom to move freely should be regularly checked and cleaned as necessary.

7.0 The Cutterblock

The cutterblock knives are set correctly in the cutterblock before despatch and it is essential that replacement knives are set in exactly the same position. To maintain the quality of finish the knives must be kept sharp and set properly. Sharp knives will also reduce the risk of snatching the timber and therefore injury. Blades must always be in perfect balance, and should not be sharpened individually. We recommend that knife sharpening be done professionally and honing/ hand sharpening avoided. Most saw doctors are equipped to sharpen planer knives. Look under 'saw doctors' and 'saw sharpening' in the Yellow Pages. For safety reasons the knives should not be ground back beyond 19mm before they are replaced. When ordering replacement knives please quote the following dimensions:
10¹/₄" x 1" x 1¹/₈" (bevelled one edge)

To replace the knives on your PT255 the following guidelines should be followed:

First isolate the machine at the mains. It is not sufficient just to shut off power at the machine. Next put up a notice saying "cutters being changed", in case you have to leave the machine for any reason and someone else might try to use it not knowing the cutterblock screws are loose. Clean off any chippings and dust from the machine tables and remove the fence and front cutterblock guard, storing them safely, and lower the infeed table using the surface table rise and fall handle.

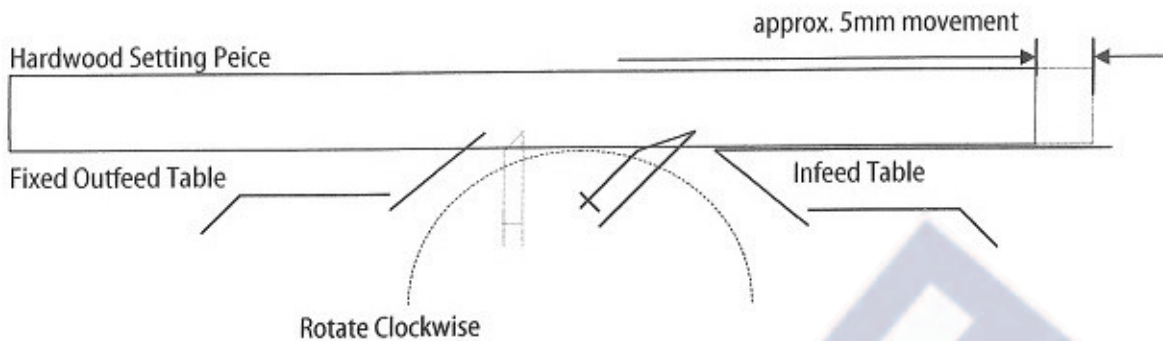
Slacken off the knife retaining screws in turn using the allen keys provided and remove the knives. Care should be exercised when handling cutter blades, wherever practicable use a tool carrier or wear protective gloves. Clean off any build up of resin on the cutterblock and chip breakers using a stiff brush with a proprietary cleaner or solvent. Replace the sharpened knives setting them deep enough in the milled groove so that they do not project above the lip of the outfeed table. Ensure that the knife protrudes 2mm width-ways from the end of the block on the rebate side of the machine, and gently grip the knife with the two outermost retaining screws.

The height of the knives is then adjusted by means of setscrews under the rear edge of the knife. Set them so that the cutting edge is just proud of the outfeed table.

The simplest method of accurately setting the knives is to take a piece of hardwood with a planed straight edge (make one up and keep it handy). Place it face down on the outfeed table overlapping the cutterblock, and turn the cutterblock manually in its direction of cut. When the blade being set comes into contact with the piece of hardwood it should carry it forward 5mm (a mark on the timber lined up with the edge of the table will help show the amount of movement). Test the knife at both ends to ensure that it is parallel to the table. When you are satisfied with the set, tighten the cutterblock retaining screws, working from the centre screws outwards to ensure that the knife is not distorted. Do not over tighten. Recheck knife settings after tightening. Repeat the process for each knife, remembering that they must be set identically if they are to give a satisfactory finish.

Reposition the table, fence and guards, and remove all tools from the machine area before testing the operation of the planer with a trial piece of timber. If the knives are set too high, the planer will cut a gouge at

the end of the pass. Similarly, if the knives are too low, the timber will rock on the planer and the planed edge will end up rounded.



Points to check on the cutterblock are

1. Excessive wear of the block surface due to honing or grinding cutters in situ.
2. Damage or distortion to the block.
3. Damage to the threads on the retaining screws. Rounded corners within the allen heads.
4. The condition of the bearings - check for movement and listen for noisy bearings.

8.0 Preparation of the Workpiece

In preparation for all processes, examine the workpiece carefully for faults that may affect the machining process, particularly foreign bodies such as nails, staples etc. There are many different kinds of timber, with many different working characteristics. A skilful wood machinist must consider the grain direction, the shape of the timber, whether it is bowed or twisted, and the positions of defects such as knots, wavy edges etc. He should also consider any other peculiar characteristics of the material, such as salicaceous or calceous deposits, which could cause severe blunting and chipping of the cutters. If a number of abrasive pieces are to be planed, use the ends of the cutter rather than the middle if possible.

8.1 Pilot Checks

Details on the correct setting of the guards, fence etc., together with the use of the necessary safety devices, are detailed in the following sections of this manual. Prior to operation however the following checks should be carried out (first isolate machine):

1. The blades are not cracked or distorted.
2. The cutterblock, chip breakers, blade securing screws and adjusters are clean and free from grease, rust and wood residue etc.
3. The blades are mounted correctly in the block for clockwise rotation when viewed from the control side of machine. Check the blades for tightness on a daily basis.
4. The cutterblock runs free (check by slowly turning it by hand).
5. The cutterblock guards are secure.
6. The timber is free of grit, nails or other foreign bodies.
7. The tables are free of spanners, rules etc., and that all tools are returned to their rightful place.

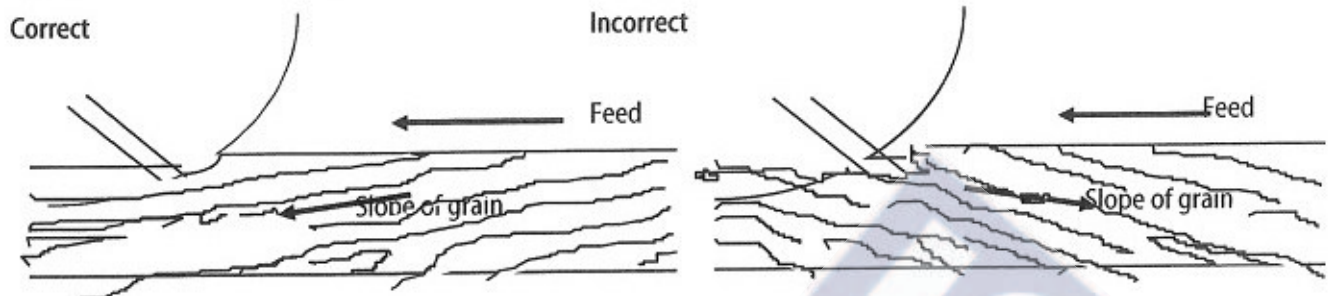
9.0 Surface Planing

When surfacing, the depth of cut is set by adjusting the height of the infeed table, using the Surface Table Rise And Fall Handle.

The outfeed table is already set level with the cutting circle of the cutterblock.

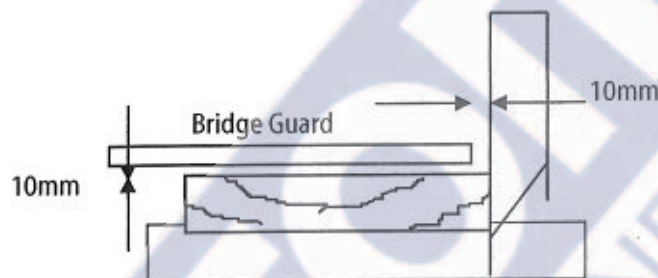
The sawn finish and the straightness of the timber determine the amount of cut required. For normal working it is good practice to set the amount of cut to 1.5mm. When planing rough sawn or bowed timber the amount of cut can be increased to 3mm, so as to obtain a clean finish with one pass over the cutters.

The timber should be fed in with consideration to the grain direction. The following illustration shows how timber fed through the cutters against the grain will cause it to tear out, producing a ragged finish. Always feed with the grain running down towards the front of the table when in the planing mode, and the opposite when thicknessing.



9.1 Flatting

When flatting, the wood is passed below the bridge guard, which should be within 10mm of the timber and 10mm of the fence, as shown below:

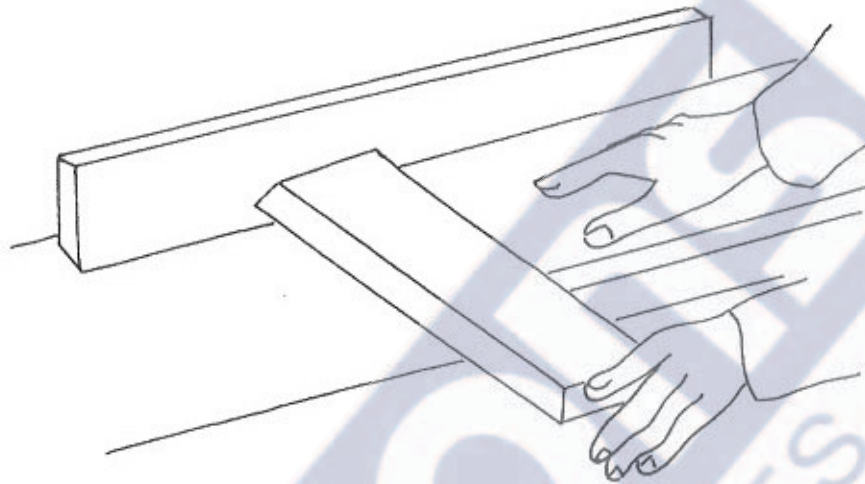


Workpieces longer than the in and out-feed surfacing tables should be supported, e.g. by extension tables or roller supports. Unless very thick material is being planed, flatting should be the safest of operations on a hand fed planer, provided that all necessary precautions are taken. In an attempt to justify the incorrect use of the bridge guard (many wrongly pass the timber between the end of the guard and the fence) machinists often assert that the left hand has to jump the guard as the wood is passed over the cutters, the consequent interruption in the progress of the cut preventing the production of accurate work. It is also claimed that the left hand must exert pressure on the wood immediately over the cutterblock. Only in the case of flatting short pieces of wood might it be necessary to pass the wood between the end of the bridge guard and the fence in order to maintain adequate control. In this event, the wood should be fed up and over the cutters by means of a push block as described in the relevant section of this manual. Small pieces are the most difficult to control, so consider, do you really need to face and edge them?

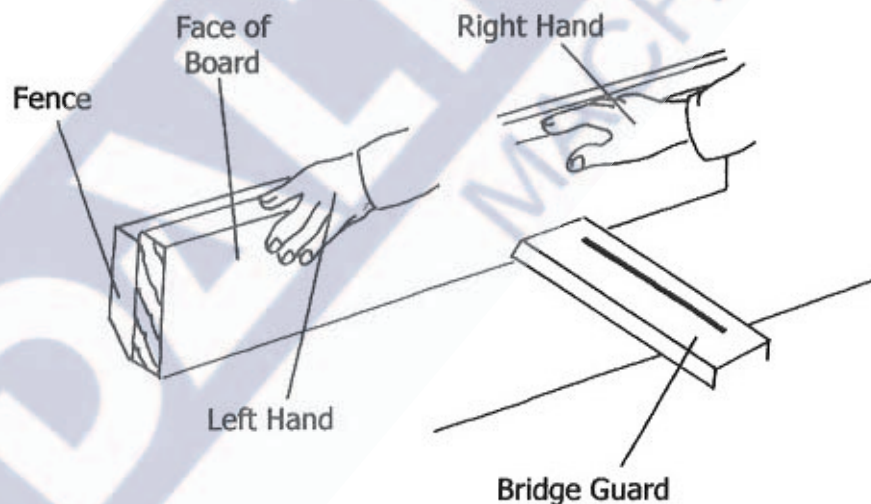
The HSE has published guidelines on the ergonomically correct use of hand fed planers, some of which is reproduced here:

Hand positioning

Preparatory: Using the left hand, with the guard resting on the outfeed table, adjust the guard horizontally up to the fence and then lift the guard to just accommodate the thickness of the workpiece. Push the workpiece with the right hand only a little under the guard and let the latter rest upon the workpiece. This stage should not be carried out while the cutterblock is in motion.



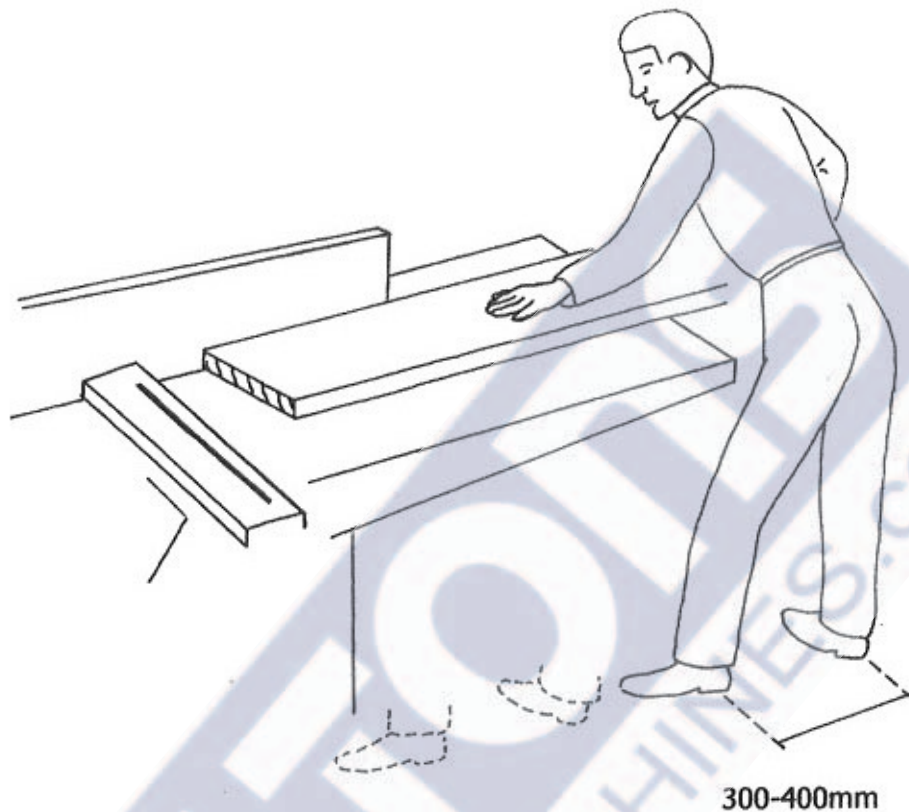
The work should be fed by the right hand, and if the knives are sharp and the tables are properly set the main functions of the left hand are to assist feeding by drawing the wood along the delivery table towards the end of the cut, and to remove the planed piece.



When flattening a workpiece of more than 75mm thickness the bridge guard must be lowered on to the table and adjusted horizontally to the workpiece. The workpiece should be straightened, with flat hands beside the guard, along the fence.

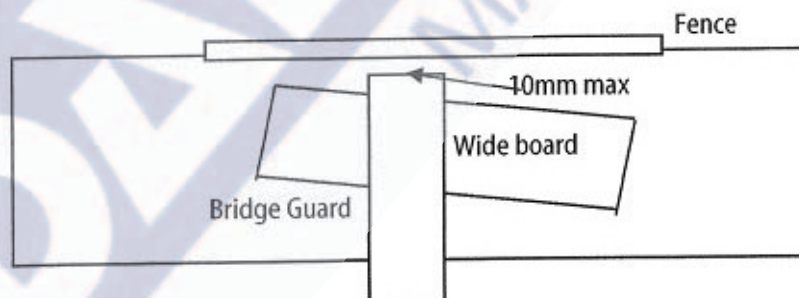
Foot positioning

It is important that a good firm and balanced base is made and maintained by the feet during planing. The feet should move forward with the work piece giving good control of the work piece as illustrated below in positions 1 and 2:



9.2 Planing Wide Boards

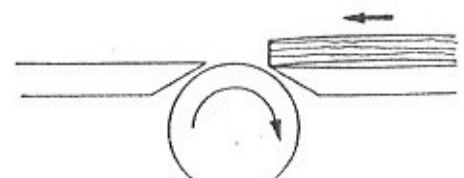
Wide boards should be fed at an angle to reduce initial impact and the risk of throwback.



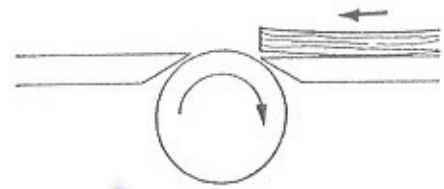
9.3 Planing Bowed Boards

Slightly bowed boards may be planed by the method shown below, but care must be taken to ensure two point contact on the infeed table to avoid throwback. Badly bowed boards should not be planed in this method and should be cut up for jobs requiring shorter lengths.

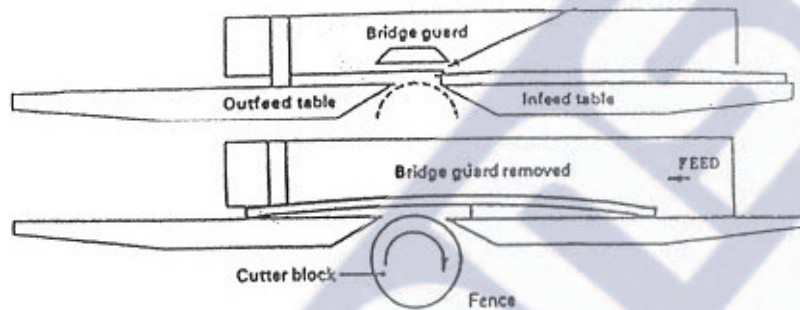
Always plane the board hollow side down, as shown



Working round side down causes timber to rock, thus making it very difficult to obtain a straight parallel face.



The bridge guard must always be in position when planing bowed boards, as shown:

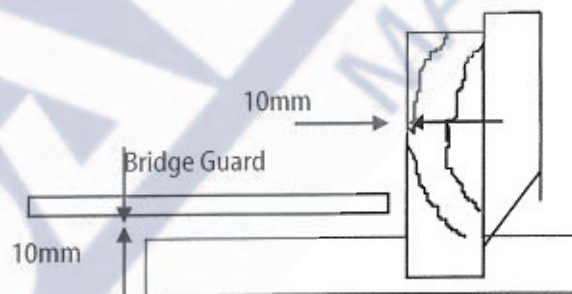


ILLEGAL OPERATION

As it is illegal to operate the surface planer without the bridge guard, the long accepted way of placing the front portion of timber on the outfeed table and taking several cuts off the other end then reversing the timber should not be used.

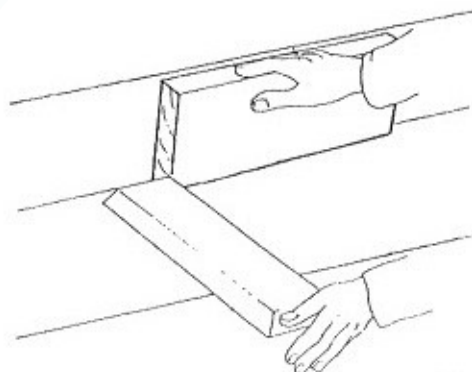
9.4 Edge Planing (Squaring)

When edging, the wood is passed between the end of the bridge guard and the fence. The bridge guard should be adjusted both horizontally and vertically to leave only 10mm from both the feed table and the workpiece, as shown below:

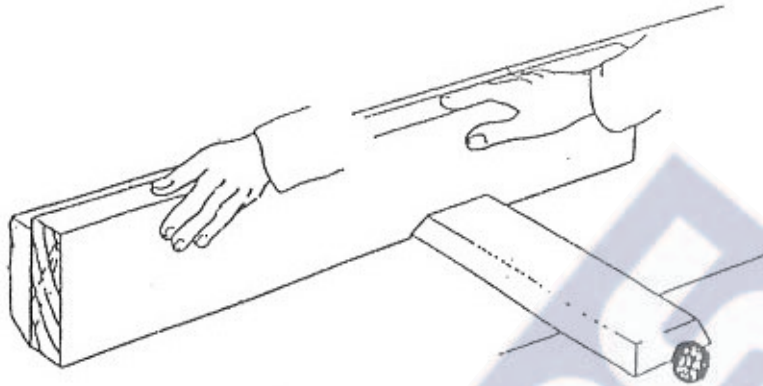


When edge planing, follow these guidelines regarding the correct positioning of hands:

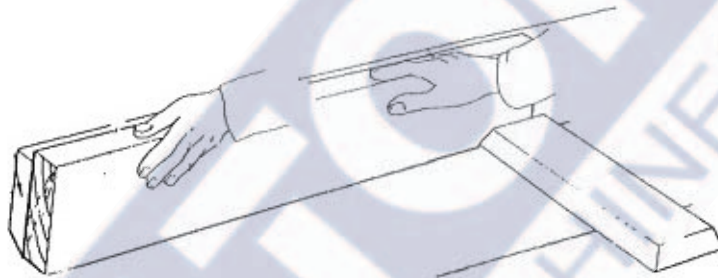
Preparatory: Place the workpiece against the fence and move it with the right hand forward to about the front edge of the infeed table lip. With the left hand bring the guard up to the workpiece. The guard should be positioned as previously shown. This stage should not be carried out while the cutterblock is in motion.



During operation the workpiece is pressed up against the fence and the outfeed table by the left hand, fingers closed (thumb on workpiece). This will produce an edge that is square to the face of the timber. The workpiece is moved forward regularly by the right hand, again with the fingers closed and thumbs on workpiece.



When edging a workpiece of more than 75mm thickness, move the piece forward with both hands. In doing so, the left hand, fingers closed presses the workpiece against the fence and the outfeed table. The right hand lies upon the workpiece.

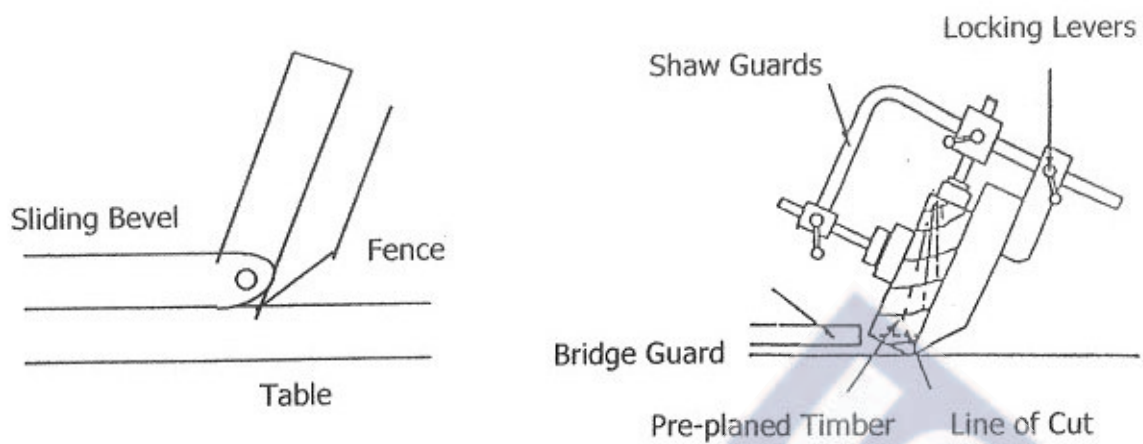


Edge planing of plywood, chipboard and blockwood

Plywood and chipboard have a severe blunting effect on cutters due to the abrasive nature of the glue line. For this reason, when edge planing, keep well over to the far side of the cutter, leaving the rest of the cutter for other work. Plywood, chipboard and the like are best cut on a dimension saw using a tungsten tipped blade, which gives an excellent finish. Another alternative is to place the material on a vertical spindle moulder, using tungsten tipped cutters.

9.5 Bevelling or Chamfering

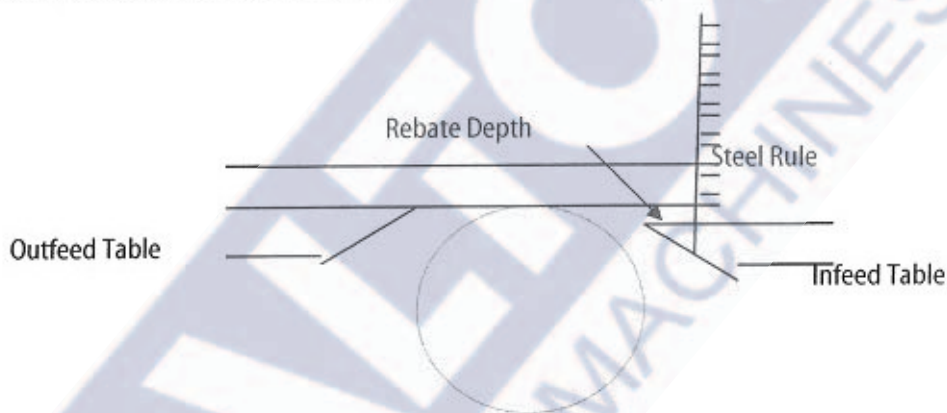
This can be achieved by angling the fence with the aid of a sliding bevel to the angle required. This operation can be done as for edge planing, but the use of the shaw guards provided will prevent the workpiece from slipping. The workpiece is fed through the tunnel formed by the Shaw Guards. The size and angle of bevel will determine whether it can be worked at one pass, or whether a second or third cut is required for safety in working.



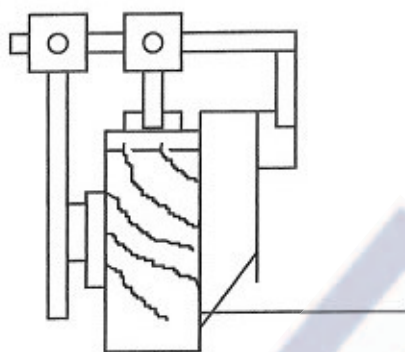
9.6 Rebating

Provided that it is not a stopped rebate, this operation can be done on the *Sedgwick* planer range provided it is effectively guarded. The Shaw Guards must be be used to ensure this operation can be done safely.

1. **Check the cutters** - Ensure that the edge of the cutter clears the end of the block and the outfeed table edge.
2. **Set the width** - Set the width of rebate by moving the fence to the required position.
3. **Set the depth of rebate** - The depth of rebate can be set using a steel rule as shown:



The size of rebate will determine whether or not it can be done at one pass. Two or more cuts may be required, but it must be remembered that the **maximum depth of cut is 13mm**, and rebates in excess of this will have to be done on other machines. Ensure that the shaw guards are positioned as shown:



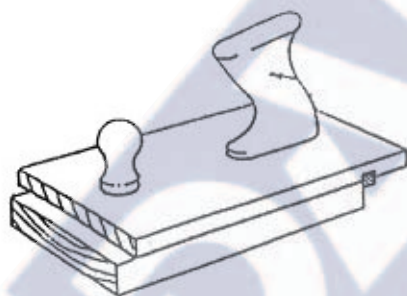
Edge of planer knife must clear end of block and outfeed table edge.

9.7 Push Blocks and Push Sticks

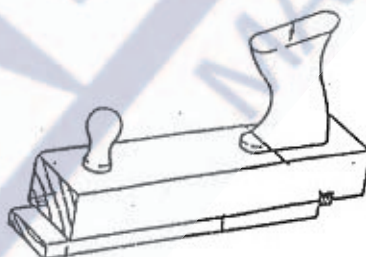
In some operations push blocks should be used, especially when planing short pieces of timber where it is necessary to pass the workpiece between the edge of the bridge guard and fence. They should be constructed so as to give the machinist a firm grip and so reduce the risk of his hands coming into contact with the cutters. A push block will reduce the risk of a short workpiece dipping as it passes the lip of the feed table, thus making such abrupt contact with the cutters that a throwback will be almost inevitable.

Handle doweled and glued to pushstick therefore no metal contact possible with the cutters

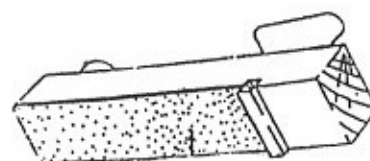
Abrasive paper glued to base to give better frictional grip and prevent the workpiece moving sideways



Hardwood strip housed and glued into body of pushblock



Narrow pushblock for short narrow thin material



10.0 Thicknessing

Raising or lowering the thicknessing bed alters the depth of cut. Use the Thicknessing Table Rise and Fall Handwheel and read off the thicknessing depth scale. Remember to lock the table in position once the depth is set. Never try to remove too much at one pass. 3mm should be the maximum.

Feed rollers at the front and rear of the cutterblock push and pull the wood through the rotating cutter knives. The infeed roller is located at the front of the block and is made of serrated steel. In order for it to operate effectively it must be kept free of resin. Clean off any build up of resin using a stiff brush with a proprietary cleaner or solvent. The metal serrations will be imprinted on the timber as it is forced under the cutterhead, and these marks are then removed by the cutting of the planer knives. At the back of the cutterblock is a smooth metal roller. A flat belt powers both rollers through a gear-reduction mechanism, and each roller is spring loaded to accommodate variations in wood thickness. These roller springs are adjustable to enable you to vary the degree of pressure that they exert. For further details see 'Maintenance'.

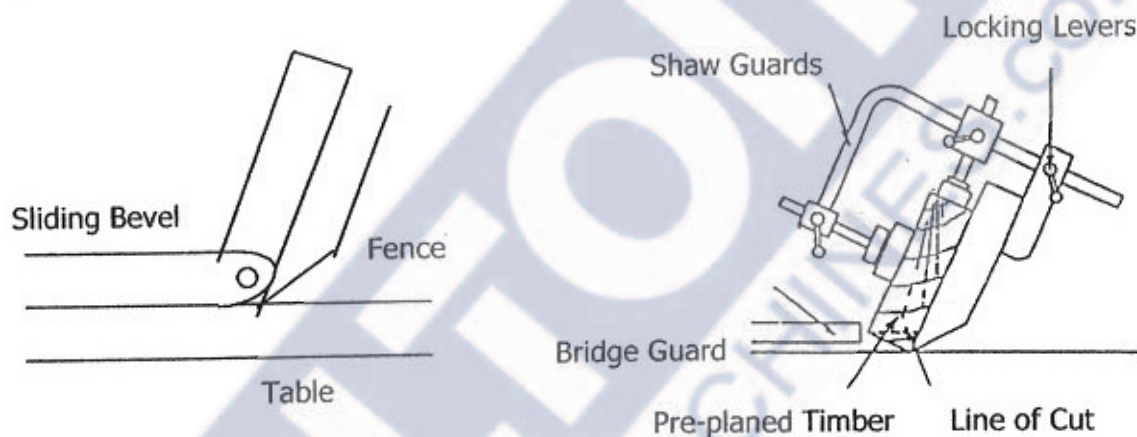
For thickness planing thin stock or making finish cuts, it is a good idea to make an auxiliary table with a smooth plastic laminate top. The table can be a straight piece of plywood with a cleat on each end. Wax the laminate surface often with a non-silicon wax.

Edge planing of plywood, chipboard and blockwood

Plywood and chipboard have a severe blunting effect on cutters due to the abrasive nature of the glue line. For this reason, when edge planing, keep well over to the far side of the cutter, leaving the rest of the cutter for other work. Plywood, chipboard and the like are best cut on a dimension saw using a tungsten tipped blade, which gives an excellent finish. Another alternative is to place the material on a vertical spindle moulder, using tungsten tipped cutters.

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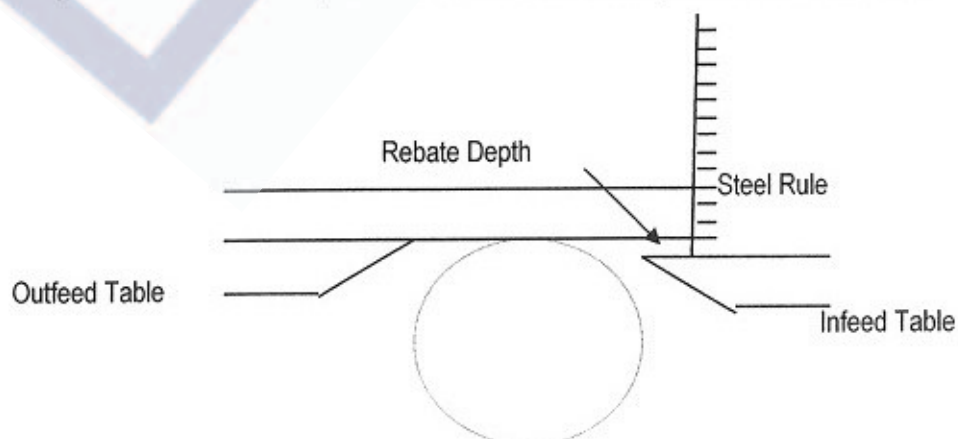
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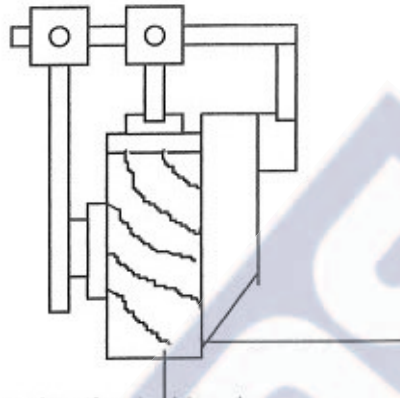
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3. **Set the depth of rebate** - The depth of rebate can be set using a steel rule as shown:



The size of rebate will determine whether or not it can be done at one pass. Two or more cuts may be required, but it must be remembered that the **maximum depth of cut is 16mm**, and rebates in excess of this will have to be done on other machines. Ensure that the shaw guards are positioned as shown:



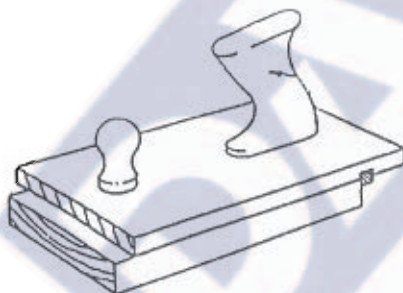
Edge of planer knife must clear end of block and outfeed table edge.

9.7 Push Blocks and Push Sticks

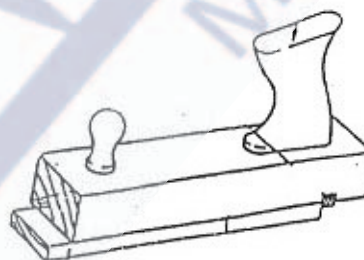
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Handle doweled and glued to pushstick therefore no metal contact possible with the cutters

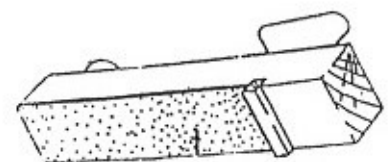
Abrasive paper glued to base to give better frictional grip and prevent the workpiece moving sideways



Hardwood strip housed and glued into body of pushblock



Narrow pushblock for short narrow thin material



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For thickness planing thin stock or making finish cuts, it is a good idea to make an auxiliary table with a smooth plastic laminate top. The table can be a straight piece of plywood with a cleat on each end. Wax the laminate surface often with a non-silicon wax.

11.0 Diagnosing Faults in Planing

Fault	Cause	Diagnosis
<i>The timber rocks, and the edge is rounded in length after being surfaced.</i>	The cutters are out of alignment with the table.	Re-set the cutters and check the edge for straightness, wear or maladjustment of the slides on the table.
	Chippings lie between the timber and table.	Isolate the machine and clear the chippings.
	The timber is placed round-edge down.	Place the timber hollow edge down.
<i>Uneven finish.</i>	Dull cutters causing chatter marks on the timber.	Re-sharpen the cutters.
	An uneven feed rate.	Feed the timber into the cutters at the correct rate.
<i>A pronounced cuttermark pattern.</i>	Too fast a feed rate.	Reduce the feed rate.
	One knife is set higher than the other	Re-set the cutters.
<i>An unplanned line is left on an otherwise smooth finish</i>	Chipped cutter	Replace the cutters.
<i>The timber 'drops' at the end of the cut and gouges out the end of the timber.</i>	The knives are too high above the cutterblock.	Re-set the cutters.
<i>Excessive vibration causing a poor finish.</i>	Unbalanced cutters or block.	Check the balance of the cutters on a balancing stand, and grind the heavier one so as to balance correctly. Run the block without cutters to see if it still vibrates.
	Worn bearings.	Renew the bearings.
<i>The edge of the timber is not square to the face.</i>	The fence is not square.	Adjust the fence square to the table.
	The cutters are out of line with the table.	Re-adjust the cutters.
<i>Timber hits the outfeed table</i>	Knives are too low in the cutterblock.	Re-set the cutters
<i>Timber becomes wedge shaped over full length.</i>	Knives are too low in the cutterblock.	Re-set the cutters.
<i>End snipe when thicknessing</i>	End of timber is not being held down against the table by the outfeed roller.	Adjust roller settings. For long boards, use an auxiliary table on the thicknessing bed.

12.0 Limitations of Use and Safe Working Practises

The following operations shall not be attempted on planer thickening machines, as they cannot be performed safely:

- stopped work, i.e. any cut which does not involve the full workpiece length,
- planing of badly bowed timber where there is inadequate contact of the timber on the in-feed table,
- planing tapers which involves 'dropping on' where the bridge guard cannot be correctly positioned.
- thickening of more than one piece of timber at the same time. Most of the accidents caused by the thickening operation are due to the timber being thrown back by the knives. This can occur when a heavy cut is being attempted on difficult material, but it happens more commonly when a number of pieces are being thickened together. Because of inevitable variations in the thickness of the pieces, the feed roller cannot grip each piece equally, and a thinner piece travelling towards the cutter block between two thicker ones is liable to be ejected violently when it comes into contact with the knives.

Training and instruction is a central requirement of the Woodworking Machines Regulations 1974. No hand-fed planing 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 planer / thickener 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 fence, jigs and safeguards;
- The safe handling of the workpiece when cutting;
- The position of the hands relative to the cutters and the safe stacking of the workpieces before and after cutting.

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 included in this manual.

12.1 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 effect 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 Blade	This affects the windage noise and increases roughly in proportion to the width of cut.
	Blade Sharpness	Dull and worn blades exert more force on the timber thus creating more noise.
	Balance	Out of balance blades mean vibration and changes in cutting conditions, resulting in increased noise levels.
Extraction	Air Velocity/ System Design	Resonant conditions can lead to high noise levels, excessive turbulence and chip impact can increase noise levels substantially.

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

OPERATION	TIMBER	DEPTH OF CUT	NOISE LEVEL dB(A) @ 1M
None	None	No load	76
Surfacing	Softwood 75mm wide	-	80
Surfacing	Softwood 300mm wide	2mm	86
Surfacing	Hardwood	2mm	84
Thicknessing	Softwood 77mm wide	2mm	87
Thicknessing	Softwood 300mm wide	2mm	90
Thicknessing	Hardwood 75mm wide	2mm	87

Using correctly designed extraction hoods and a compatible system the compound effect on this machine was to increase the readings by 1dB(A).

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.

12.2 Warning Labels

The warning label fixed to the machine gives the following advice. Please ensure that all operators read it carefully.

Ensure that you fully understand the manufacturer's instruction manual and have received sufficient training in the use of this machine and the particular safety precautions to be observed.

BEFORE OPERATING THIS MACHINE ENSURE THAT:

- 1. All guards and fences are securely fitted and correctly set in accordance with the current regulations.*
- 2. Tooling is of the correct type, sharpness and direction of cut and is securely fastened.*
- 3. Correct spindle speed and feed is selected (for the cutter equipment) where appropriate.*
- 4. Loose clothing is either removed or fastened and jewellery removed.*
- 5. Suitable jigs and push sticks are available for use where appropriate.*
- 6. The working area is well lit, clean and unobstructed.*
- 7. Extraction equipment where appropriate is switched on, properly adjusted and working efficiently.*

DURING MACHINING:

- 1. Wear suitable protective equipment where necessary, e.g. goggles, ear defenders and dust mask.*
- 2. Ensure all moving parts of the machine are stationary before setting, cleaning or making any adjustments.*
- 3. Ensure all power sources are isolated before any maintenance work commences.*

13.0 Maintenance and Lubrication

In order to ensure long life, maximum reliability and optimum performance, the following monthly maintenance and lubrication schedule should be carried out, otherwise the machines warranty could be invalidated.

Note. Electrically isolate the machine and ensure that all spindle movement has ceased before carrying out any of the operations.

13.1 Lubrication

Since your planer thicknesser 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 table top, or leave green wood on it. These will leave permanent marks.

Waxing the table surface will help resist moisture, as well as reducing friction on the workpiece. Avoid products that contain silicone, anti-slip additives, or abrasives.

Clean the interior of the machine frequently to prevent the accumulation of chips and sawdust around the motor and rise and fall mechanisms.

Once clean, lubricate moving parts using a lubricant that does not pick up a lot of sawdust. Pay particular attention to the following: the drive chain, thickness table rise and fall barrel, thickness table rise and fall screw, thickness table rise and fall gears, surface table screw and slide assembly, fence table bar, fence swivel screw, and the front cutterblock guard vertical support bar. Powdered graphite, hard wax or white lithium spray is ideal. Do not use an oil-based product. These will collect sawdust and congeal into a gummy substance, making working parts hard to operate. Drive belts will also deteriorate if they come into contact with oil.

13.2 Cutterblock and Bearings

The cutterblock needs very little maintenance, but it should be checked for wear, burrs and any play in the bearings that the arbor rides in.

First check the cutterblock, the chipbreakers, and the cutterblock screws for dirt, burrs or raised nicks. Slight imperfections can be removed carefully with a fine-cut file.

The cutterblock bearings are sealed for life and require no lubrication. To check their condition, turn the block by hand while feeling for any roughness. Grasp the arbor on the drive side of the block and gently pull up and down to check for any play. Roughness or slack in the bearings means that they need to be replaced.

In the unlikely event that the bearings do have to be replaced the procedure is as follows:

Bearings required: 1 good quality 2206 Metric Sealed Bearing
 1 good quality 6207 Metric Sealed Bearing

Remove the machine's back guard, vee ropes, gear mechanism, and both surfacing tables (check for shims under the fixed back table). Take the tension springs off the feed mechanism and remove the infeed and outfeed rollers. Remove the vee pulley from the end of the cutterblock

Next, slacken the screw that holds the loose collar in the drive end bearing housing (at this stage do not try to pull the collar out). Remove the three bolts fastening the side frame on the drive side of the machine to the base, and remove the large nut from the rear side frame that secures the stretcher bar. The rear frame complete with stretcher bar can now be pulled away from the cutterblock.

Remove the cutterblock and unfasten the retaining screw and washer before driving both bearings off the arbor.

Clean all parts thoroughly prior to commencing the rebuild.

Fit the 2206 bearing onto the block and slide the block into the front side frame. Replace the rear side frame complete with stretcher bar and bolt down securely. Temporarily fit the large bearing type 6207 into the rear frame, entering it into its housing by its full width plus 10mm. Replace the feed rollers and tension springs (instructions on how to set the feed rollers follow), plus both surfacing tables. Ensure that any shims found under the outfeed table are positioned exactly as you found them. Using the large nut on the stretcher bar adjust any play out of the surface table sideways, then check that there is no lift in the surface table, and that the infeed table rise and fall screw operates satisfactorily.

Using a good straight edge, check that the two tables are in line end to end. If there is a variation, this can be rectified by slightly loosening the outfeed table bolts and inserting shims underneath the feet.

Once the two tables have been aligned, the large bearing can be driven right up to the shoulder on the cutterblock, and the cutterblock pushed as far towards the front of the machine as possible. Replace the bearing collar and lock in position. Replace the vee pulley, key retaining screw and washers. Finally replace the drive chain, vee belts, and guard.

13.3 Vee Belts and Pulleys

The cutterblock is driven via two A64 vee belts and the feed by a chain mechanism. To prevent loss of power, excess stopping times and/or belt slip these belts should be correctly tensioned and regularly checked for wear.

When the belts begin to show signs of wear replace them. Frayed belts will cause vibration, putting unnecessary strain on the arbor bearings. Instructions on changing/re-tensioning the drive belts are as follows:

You will need two A64 vee belts, a rule, a 13mm spanner and a 19mm spanner.

Electrically isolate the machine and remove the back-guard. Loosen the two bolts at either end of the motor mounting bar and use the adjusting stud to bring the two pulleys closer together. Replace the worn belts and re-tension (effectively taking the motor farther from the cutterblock arbor). The motor mounting bar can then be re-tightened and the rear machine guard replaced.

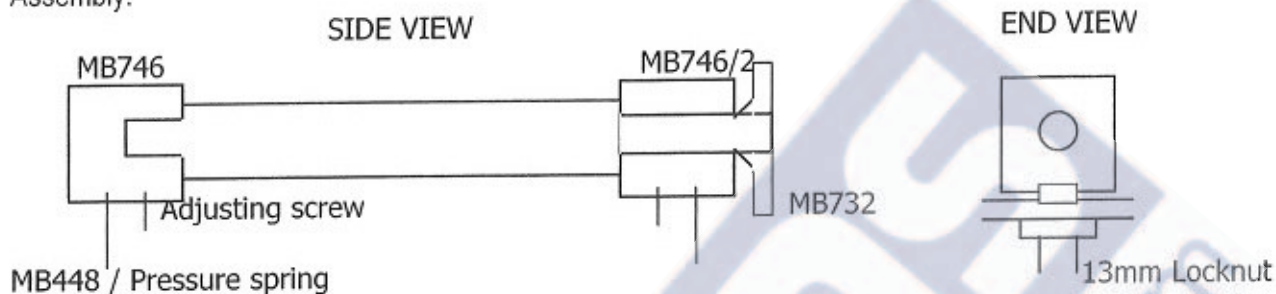
Finally, ensure that the cutterblock comes to rest within ten seconds of pressing the stop button.

Excessive belt wear, vibration and noise may be the cause of poorly aligned or loose pulleys. Check alignment by placing a straight edge across the faces of the two pulleys. If necessary adjust the motor pulley by loosening the allen screw locking the pulley onto the shaft. If you cannot get the pulleys to align it may be because the shafts are not in line. Loosen the motor mounting bolts and shift the motor until you get the required results. Position the pulley as near as possible to the motor bearing. If it is set too far along the motor shaft it will put unnecessary strain on the shaft and bearings.

13.4 Adjusting the Thickening Feed Rollers

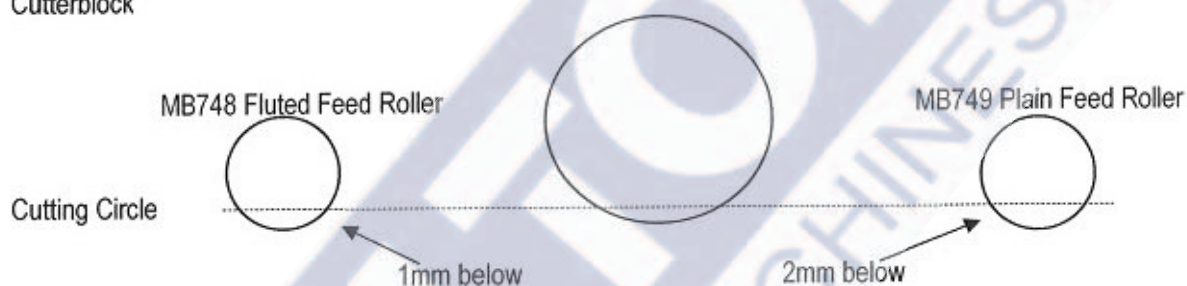
As the planer knives are sharpened and re-set you may find it necessary to adjust the thickener feed rollers to ensure that timber is fed through smoothly. These are set at the right height and pressure at the factory, but may require adjustment to compensate for slight changes to the knife height in the cutterblock.

Assembly:



The height of the rollers is set to the cutting circle as follows:

Cutterblock



Before adjusting the height of the feed rollers first check that there are no saw shavings trapped beneath the bearing blocks. Adjustment is made using the 8mm adjusting screws located beneath the bearing blocks. Surface-plane a piece of hardwood flat and to square. Next thickness it to give you an exact measure of the cutting circle. Wind the thickening table down 1mm and set the bottom of the fluted feed roller to the top of your hardwood setting piece. The height of the roller should be set equally at both ends. Use the same technique to set the plain roller to 2mm below the cutting circle.

The pressure springs are mounted on studs and tensioned by 13mm locknuts. The pressure on each spring is factory set. On the chain side of both rollers the spring should measure 65mm, while on the non-drive side of the rollers the springs should measure 55mm when compressed (the reason for having more pressure on the non-drive side is to compensate for the pressure exerted by the chain). These settings may not be ideal for every cutting operation and we therefore recommend that you experiment to find those that best suit you. If the pressure on these springs is too light for example, the rollers may slip and not feed the wood through the cutterhead. If the pressure is too great on the serrated feed roller, the serrations may be deeper than the cutterhead can plane off, especially on thin soft stock. In such cases the pressure should be reduced. Rollers do not require a lot of pressure for light cuts. If you plan to take deep cuts, you will have to increase the pressure. If increased spring pressure does not propel the wood through the cutterhead, the rollers need cleaning, or the thickening table needs to be waxed.

13.5 Planer Tables

The surface tables are formed from cast iron, and may become warped or bent as a result of neglected maintenance and excessive wear. The dust and vibration from surfacing miles of hard maple say, or pitch pine, will loosen adjustments and make slideways sticky. A sloppy fit hammers adjoining precision surfaces, and poorly lubricated slideways wear quickly. Never place anything on these tables which doesn't belong there. An excessive weight laid to rest on a table could, over time, cause the table to sag, necessitating a re-grind. Also take great care when handling the machine (refer to Handling Instructions). Any attempt to lift or drag the machine by its top tables could result in them coming out of true.

If at any time you suspect that your top tables are out of true, first check them for flatness using a long straightedge. Raise the infeed table until it is level with the outfeed table. Check the individual tables first, longitudinally for parallelism and then diagonally for flatness. Measure any space under the straight edge with an engineer's feeler gauge - any gap should be less than 0.010 in. Next, check both tables as a unit. Check next to the fence and on the opposite side, and then check the diagonals for twist. Ideally the tables should be less than 0.010 in. out of parallel end to end.

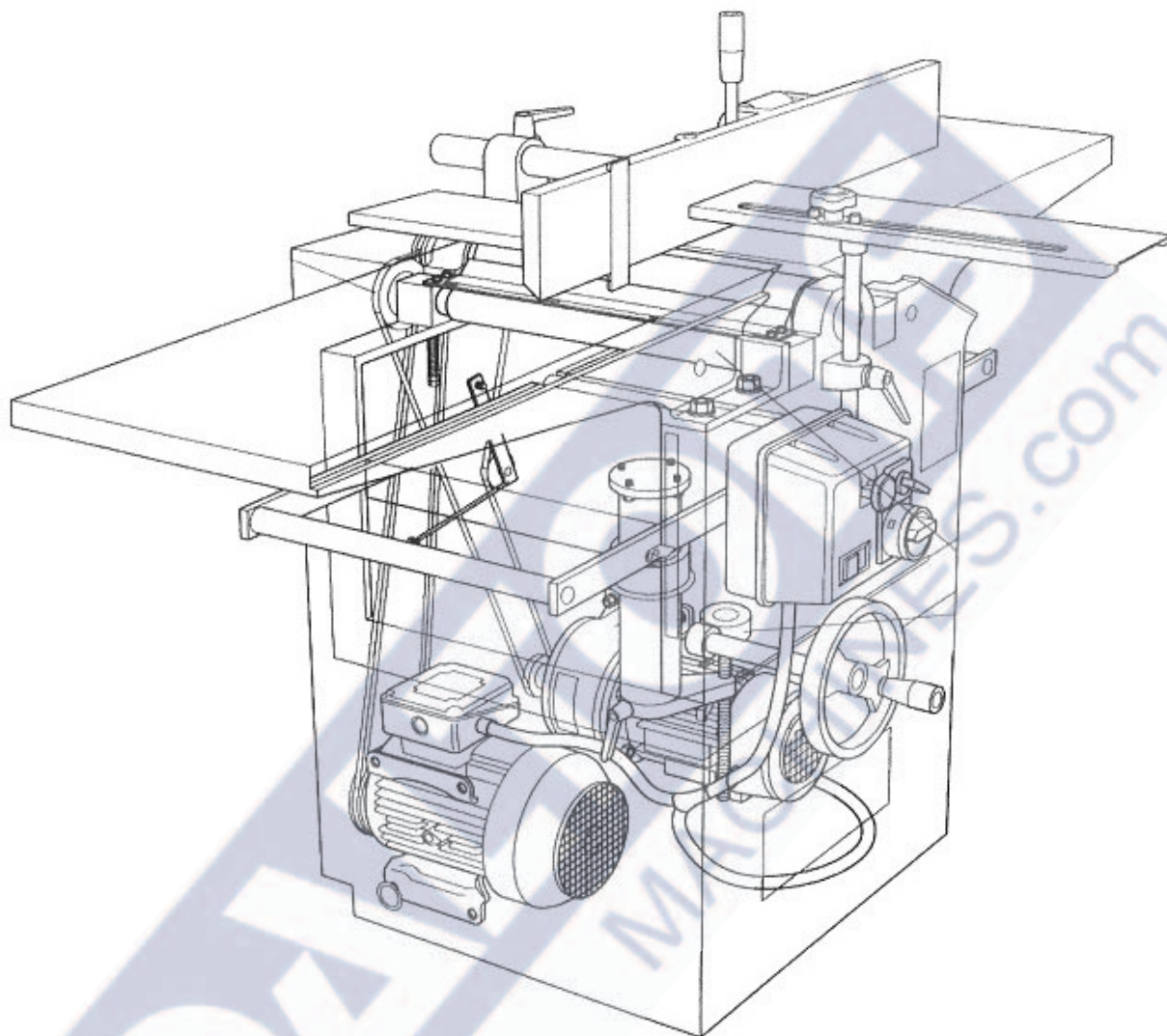
Should you find that adjustment is necessary, begin by removing the infeed table (sometimes dirt between the slideways can build up and cause alignment problems). Clean all surfaces and lubricate with a light lithium grease. Reassemble using a 19mm AF Spanner to tighten the gib screws. If they are not tightened correctly the table will sag at the end. If they are over tightened the table will not rise and fall. The rise and fall action should only require moderate action.

If this method fails to align the tables, shim underneath the feet of the fixed outfeed table until it is aligned with the infeed table at its highest point. Brass or sheet steel shim stock is the best choice for this.

13.6 The Fence

The squareness of the fence relative to the infeed table is adjusted via a back stop. First tighten the fence lateral lock, untighten the fence cant lock, and push the fence into the vertical. Use an engineer's square to check the angle between the fence and the infeed table. If necessary release the 8mm lock nut at the back of the fence using a 13mm spanner, and adjust the stop using the 4mm allen key supplied.

14.0 Sedgwick MB/CP Parts Illustration



14.1 Sedgwick MB/CP Parts List

Stand Assembly

MB700/2 STAND
SCL006 CE LABEL
SCL007 WARNING LABEL
SCL027 'SEDGWICK' LOGO
MB709 MOTOR MOUNTING
MOTOR 3KW 3000RPM 415/3/50 D90 FOOT MNT.
MOTOR 3KW 3000RPM 230/1/50 D90 FOOT MNT.
MOTOR .45/.3KW 1500/1000 415/3/50 D80 FLNG
MNT.

MOTOR .37KW 1500RPM 230/1/50 D70 FLNG
MNT.
GEARHEAD GM1 94/62RPM
GEARHEAD GM1 70RPM
3 PHASE STARTER COMPLETE
1 PHASE STARTER COMPLETE
MB730/3 MOTOR PULLEY
MB731 GEARBOX SPROCKET

Base Assembly

MB701	BASE
	RUBBER WASHER 55X18X3MM
MB702	RISE AND FALL PILLAR
MB703/2	RISE AND FALL NUT
MB704/2	RISE AND FALL SCREW
51104	THRUST BEARING
GW302	GEARCUT SPIRAL 12T
GW329	GEARCUT SPIRAL 18T
MB708	HANDWHEEL SHAFT
	HANDWHEEL DIA 200+HNDLE

Thickness Table Assembly

MB720	THICKNESS TABLE
MB721	THICKNESS TABLE SUPPORT
	M8X50 LOCKING LEVER
MB723	GUIDE BARS
AM121612	BRONZE BEARING
MB726	EXTENSION ROLLERS
SCL014	RULE 0-230MM
MB727/2	DEPTH POINTER

Feed Drive Assembly

MB734	CHAIN TENSION ARM
PT038	CHAIN TENSION SPINDLE
	SPRING TENS 10DIA X 135
MB736	GEARCUT CHAIN SPROCKET 13T
	CHAIN 146 PITCHES INC CON

Frame / Cutterblock / Feed Roller Assembly

MB732	GEARCUT CHAIN SPROCKET 13T
MB733/2	CUTTERBLOCK PULLEY
A1660/A64	DRIVE BELT
MB740/2	FRONT FRAME
MB741	REAR FRAME
MB742	TIE ROD
MB743/2	CUTTERBLOCK
MB744	CUTTERBLOCK WEDGES
	M12 DOG PNT CUTTERBLOCK SCREWS
	6MM CUTTERBLOCK KEY
	M8 KNIFE ADJUSTING SCREWS
	4MM ALLEN KEY
PK308/3	HSS PLANER KNIVES 12 ¹ / ₄ "X1"X1 ¹ / ₈ "
	BEARING 6207-2RSJ
	BEARING 2206-2RSTNH
MB745/2	BEARING COVER REAR
MB746	TRUNNION BLOCKS
AM253030	BRONZE BEARING
PT062	SPRING STUDS

MB747	SPRING COMP 10DIA X 65
MB748	BEARING COVER FRONT
MB749	POLYURETHANE COATED FEED ROLLER
MB750	FLUTED FEED ROLLER
MB751	INFEED ROLLER COVER
MB752	OUTFEED ROLLER COVER
MB752	BEARING SPACER
MB766	INFEED TABLE RISE & FALL NUT

Surface Table Assembly

MB760	INFEED TABLE
MB761	OUTFEED TABLE
MB763	TABLE RETAINING PLATES
MB764/2	RISE & FALL SCREW
MB765	SWIVEL BLOCK
MB766	RISE & FALL FORKED NUT
	CRANK HANDLE FEMALE 14mm SQ
SCL012	ALUMINIUM POINTER
SCL013	RULE 0-15MM
MB768/2	ANTI KICK SHAFT
PT072	ANTI KICK FINGERS
PT073	ANTI KICK SPACERS

Fence Assembly

MB770	FENCE TABLE BRACKET
	M12X50LOCKING LEVER
MB771	FENCE TABLE BAR
MB772	FENCE SLOTTED BRACKET
MB774	FENCE SWIVEL SHAFT
MB775	FENCE WASHER
MB776	FENCE LOCKNUT
MB777	FENCE LOCKING LEVER
	HANDLE 1.580/80 N-12
MB778	FENCE
MB779	FENCE LOOSE PIECE

Guard Assembly

MB479	SHAW GUARD SHAFT
MB478	SHAW GUARD BRACKET
	M8X20LOCKING LEVER
MB353	SHAW GUARD SHAFT END HOLE
MB354	SHAW GUARD SHAFT SIDE HOLE
	BOW SPRING 25 X 16SWG
MB782	GUARD PILLAR SHAFT
MB783/2	GUARD BRACKET
	M8X30LOBE KNOB VCT.50P
MB784	FRONT CUTTERBLOCK GUARD
MB785	REAR CUTTERBLOCK GUARD
MB786	REAR MACHINE GUARD
MB787	CHIP EXTRACTION HOOD



C.D. FOR SPECIAL CONTROLLER REF MB/CP-



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