

TEMPORARY

OPERATING INSTRUCTIONS AND MAINTENANCE BOOK

30" BANDSAW

TYPE 30" BZB

INSTRUCTION BOOK No. B417

IT IS DESIRABLE THAT THIS BOOK BE GIVEN TO THE OPERATOR OF THE MACHINE

USER PLEASE INSERT SERIAL

NUMBER OF MACHINE

MODIFICATIONS ARE MADE TO THESE BOOKS FROM TIME TO TIME
AND IT IS IMPORTANT THEREFORE THAT ONLY THE BOOK SENT
WITH THE MACHINE SHOULD BE USED AS A WORKING MANUAL

30" BANDSAW TYPE 30'BZB

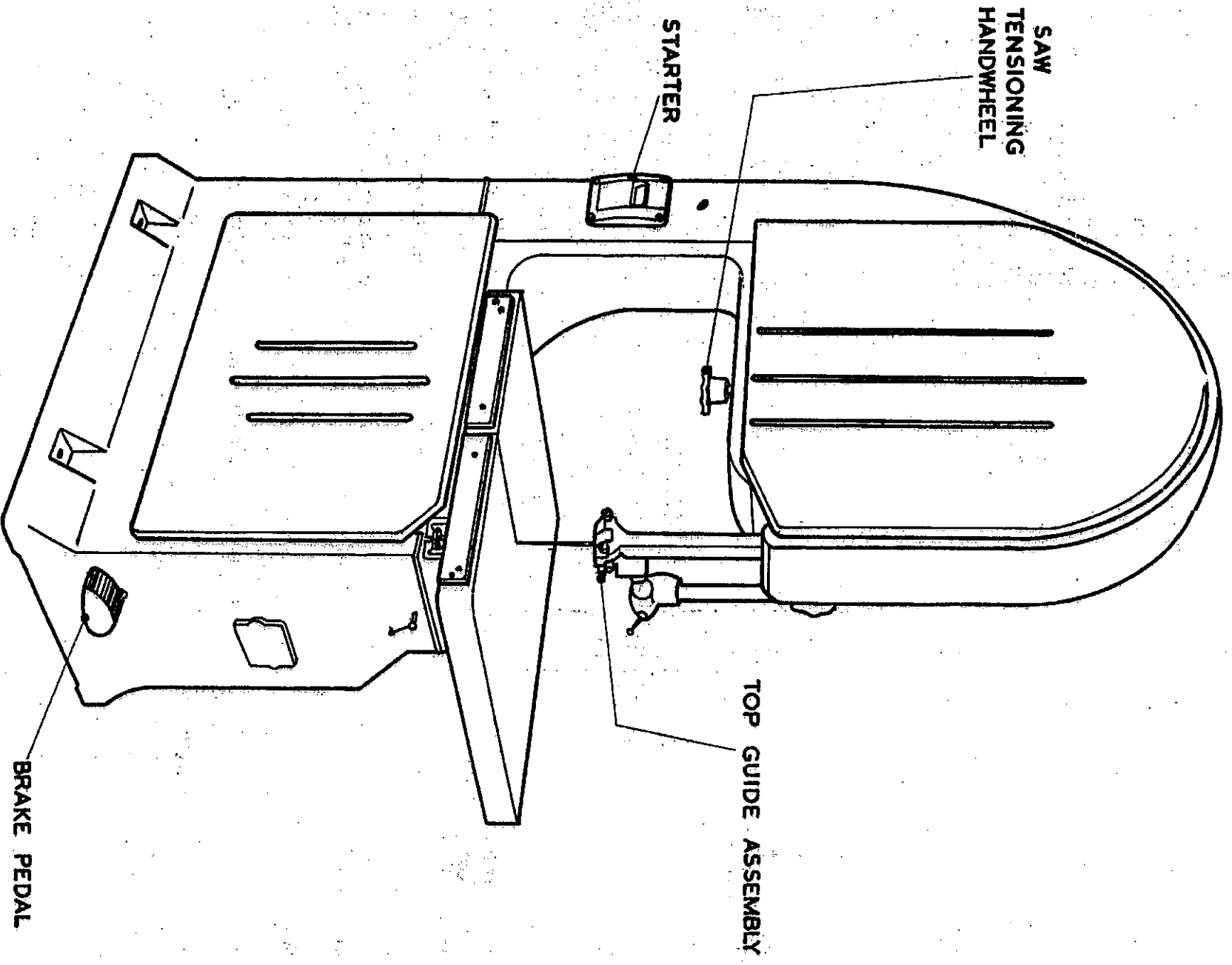


FIG. 1.

SPECIFICATION

Diameter of Saw Pulleys	30"	760mm
Width of Saw Pulleys	1 $\frac{3}{4}$ "	45mm
Maximum Width of Saw	1 $\frac{1}{2}$ "	38mm
Maximum Length of Saw	17'6"	5.3mm
Minimum Length of Saw	16'10"	5.1mm
Maximum Depth under saw guide	14"	355mm
Distance from saw to body	28"	710mm
Size of Table	30" x 30"	760 x 760mm
Table Cants	45 ⁰	45 ⁰
Height of Table from Floor	38"	960mm
Overall Height of Machine	94"	2.3m
Speed of Saw, per min.	5, 650R.	1721m
Horsepower of motor, 3phase standard	3	3
extra	5	5
Speed of motor, 50 cycles, rpm	750	750
60 cycles, rpm	900	900
Approximate Floor Space (3phase)	53" x 32"	1346 x 810mm
Approximate Net Weight	1850lb	840kg
Approximate Gross Weight	2240lb	1016kg
Shipping Dimensions	99cu. ft.	2.8m ³

Installation

Remove protective coating from bright parts by applying a cloth soaked in paraffin, turpentine or other solvent.

When the machine is cased for export the table is removed and packed individually. Remove and re-assemble, as shown in Fig. 1.

Wiring Details

The motor and control gear have been wired in before despatch. All that is required is to connect the power supply to the starter or isolator when fitted.

Points to note when connecting to power supply:-

1. Check that the voltage, phase and frequency correspond to those on the motor plate, also the correct coils and heaters are fitted to the starter.
2. It is important that the correct size of cable is used to give the correct voltage at the starter. Too light a cable will give a voltage drop at the starter and may damage the motor.
3. Check the main line fuses are of the correct capacity. See list below. When an isolator is fitted the fuses are of the correct capacity as received.
4. Connect the line leads to the appropriate terminals. See Fig. 2 for three phase supply.
5. Check all connections are sound.
6. Check the rotation of the motor for the correct direction. If this is incorrect reverse any two of the line lead connections for three phase supply.

Voltage	Phase	HP	S. W. G. Tinned Copper Wire	Fuse Rating (Amps)
220	3	3	19	38
380/420	3	3	22	24
550	3	3	24	17
220	3	5	17	65
380/420	3	5	19	38
550	3	5	21	29

Lubrication

It is advisable to keep all bright parts covered with a thin film of oil to prevent rusting. Clean saw dust from inside of main frame. See Fig. 3.

TYPE OF OIL RECOMMENDED

POWER EM 125

Foundation

See Fig. 4 for bolt positions and clearances required. When installing lever the table by packing under the base.
Foundation bolts are not supplied with the machine except by special order.

Dust Extraction

The machine has a built in dust chute with a 4 $\frac{3}{4}$ " (121mm) wide x 4" (101mm) high exhaust outlet and can be connected to the main dust extraction if desired.

Fitting Bandsaw Blades

Proceed as follows:-

1. Open top and bottom doors of the main frame and ensure the table is in the horizontal position.
 2. Loosen the wing nuts located on the underside of the table directly below the slot at the front. Swing table keep plate clear of the slot so the sawblade can be inserted.
 3. Remove sawguard on top guide and move the top and bottom guides to the extreme rear position by loosening the locking screws securing the guide support bars.
 4. Lower top wheel assembly sufficient, by turning the handwheel on the underside of the top frame, to allow the blade to be placed on both wheels easily.
 5. Insert the sawblade through the slot in the front of the table and position blade on top and bottom wheels. Care should be taken to ensure that the blade is free in the guides.
- Check the cutting rake of the teeth are positioned downwards at the cutting point.
To reverse direction of cutting rake turn the blade inside out.
Turn the tensioning handwheel on the underside of the top frame until the blade is just held on the wheels.

Tracking of Sawblade on Wheels

Every sawblade has slightly different running characteristics on a bandsaw machine due to the condition of the steel ribbon it is made from, the blade joints and the tension in the blade ribbon. This is compensated by using a crowned or slightly curved rubber face on the wheels and providing the top wheel with a slight tilting movement.

To check the tracking of the sawblade the undermentioned procedure should be followed:-

1. Rotate the top wheel slowly by hand in a clockwise direction and check the blade is running central on the wheels.
2. If not central loosen the handwheel at the rear of the top mainframe behind the wheel and adjust until the saw is tracking correctly i. e. in the centre of both wheels.
3. When tracking correctly re-lock tracking handwheel securely.

This adjustment is most important as when the sawblade is tracking correctly it passes in a straight line between the top and bottom wheels and does not snake. When the latter occurs the back of the sawblade keeps hitting the back guide roller and wood-work resulting in damaged guides

Tensioning (Standard)

To tension the sawblade turn the tensioning handwheel until the correct tension is reached according to the scale at the rear of the top mainframe directly behind the tensioning screw. The scale gives the correct tension for the width of blade which is

being used irrespective of the length of the blade.

Incorrect tension or tightness of the sawblade over the wheels will result in saw breakages so always use tension indicator to achieve maximum blade life.

The scale and pointer are accurately set before despatch from the works. Should this be displaced for any reason check the scale by the undermentioned procedure.

1. Tension the sawblade as previously described until it can be pulled $\frac{1}{4}$ " (6mm) from its true line at a central point between the wheels.

2. Check whether the scale indicates the correct sawblade width. If scale is incorrect loosen the two securing screws and position scale correctly. When set tighten all screws.

After the scale has been set in this manner it will read correctly for any width of blade within the range of the machine without further alteration, even if the length of sawblade varies for any given width.

For a $\frac{1}{2}$ " (12.5mm) blade the pointer should read $\frac{1}{2}$ " (12.5mm) etc.

If the machine is left standing for a period e.g. overnight the tension should be reduced, and the blade re-tensioned before putting the machine into operation again.

Tensioning with patent saw tension indicator

This can be supplied with the machine at extra cost.

The tension indicator is fitted with an adjustable pointer and scale to indicate the width of blade which is fitted. Adjust the indicator pointer to the width of blade being tensioned and lock in position with the $\frac{3}{8}$ " Whit wing nut "A" in Fig. 5. Tension the sawblade by means of the tensioning handwheel until the red indicator light, on the trunk of the machine between the top and bottom wheels, goes out. This is the point of minimum permissible tension, one further turn of the handwheel is necessary to reach the point of correct tension. If the handwheel was turned approximately one more turn, the red indicator light would come on again, and a position just prior to this would be the point of maximum permissible tension.

It should be noted that the saw tension indicator light is interlocked with the starter and the machine motor will come into operation only when the light is out i. e. when the sawblade is in the range of correct tension.

Setting Guides

On this machine guides are fitted above and below the table and similar in design. Each guide is fitted with brass wearing blocks and ball bearing runners for the back of the sawblade.

After the blade is tracking perfectly proceed to set the guides as follows:-

Top Guide Assembly

1. Bring guide assembly forward, by loosening ball lever screw securing the complete guide assembly in guide rise and fall post, until the brass wearing blocks are positioned just behind the gullet of the sawblade as shown in Fig. 6. Re-lock complete guide assembly in this position.

2. Set the side wearing blocks just clear of the sawblade so that support can be given to it but does not nip the blade by adjusting the knurled knobs on either side of the guide assembly. When setting the guide blocks care should be taken not to displace the blade from its true vertical position.

3. Loosen thumbscrew securing runner spindle in guide assembly and position runner guide within $1/64$ " (.4mm) of the back of the sawblade in its free position. When correctly positioned re-lock in position.

4. Replace sawguard and lock in position.

5. The top guide should now be adjusted for height, by loosening the ball lever screw securing the guide rise and fall shaft. The top guide assembly is fitted with a constant tension spring to prevent the guide assembly from accidentally falling should the locking screw be loosened. The guide should be positioned as close to the work as possible to give maximum support to the sawblade.

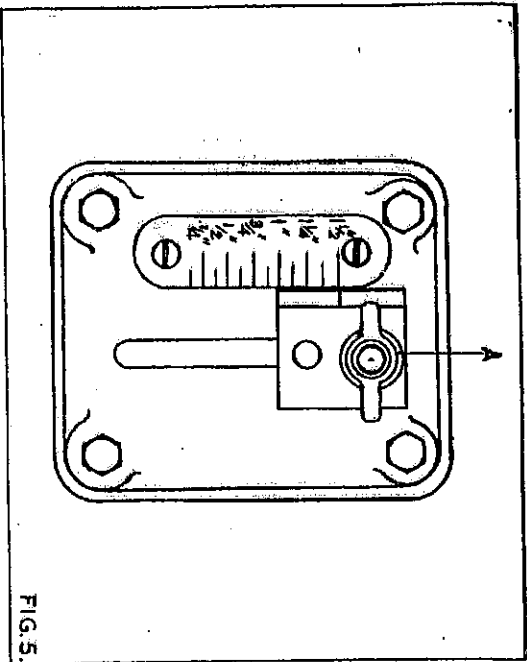


FIG. 5.

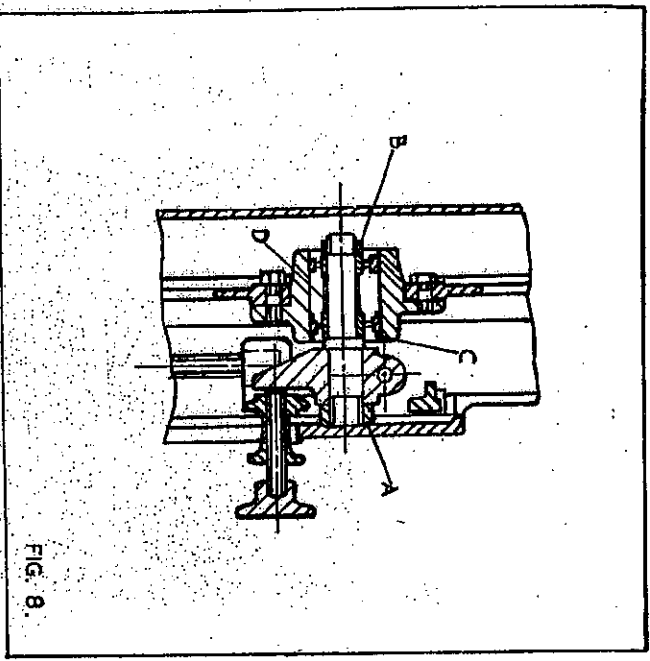


FIG. 8.

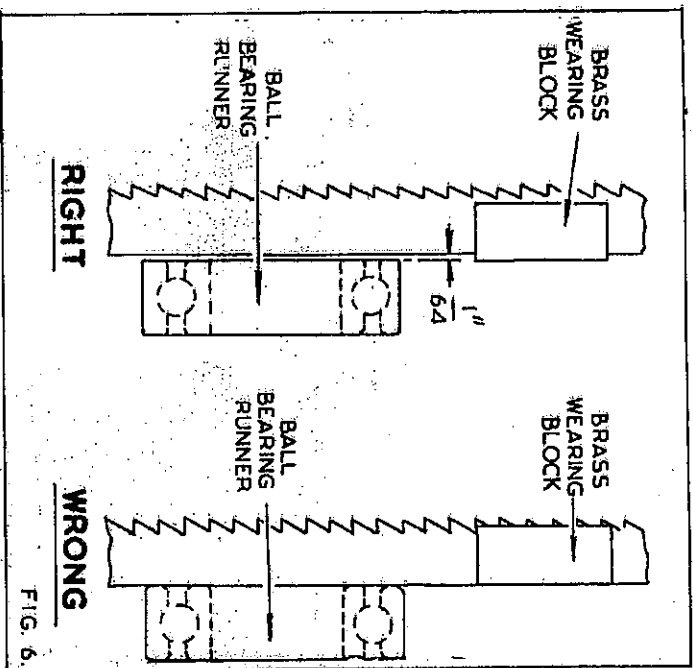


FIG. 6.

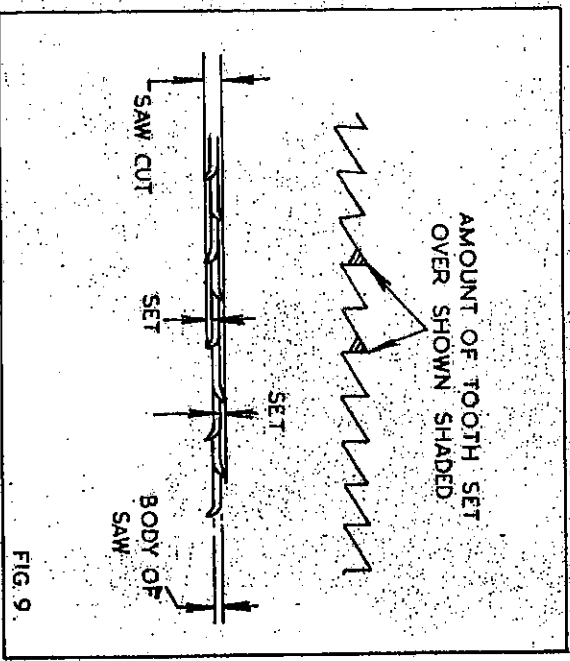


FIG. 9.

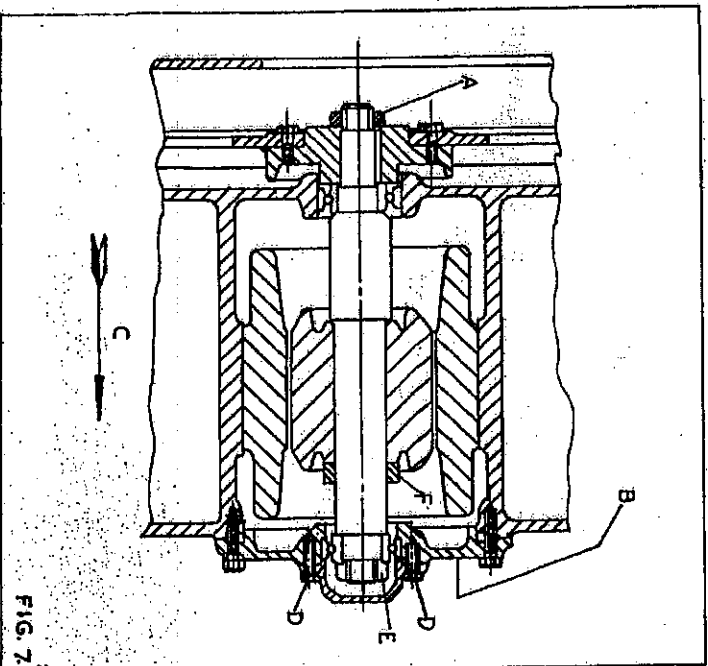


FIG. 7.

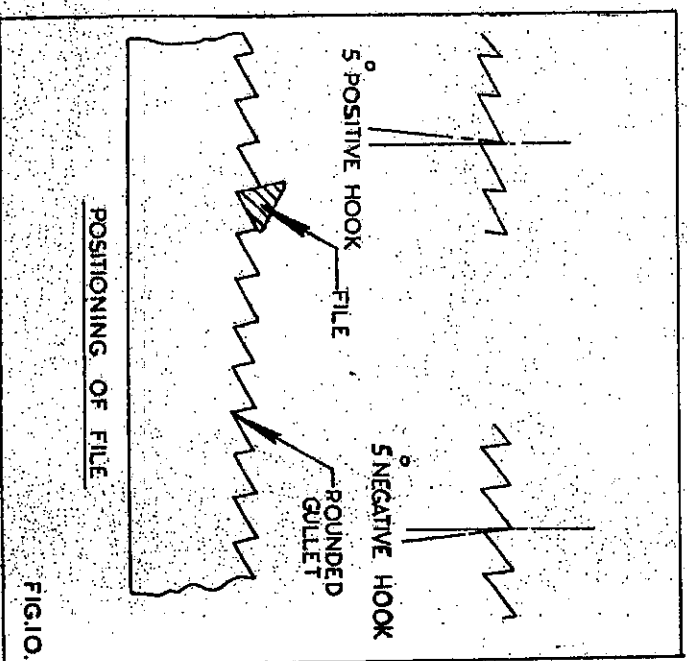


FIG. 10.

Bottom Guide Assembly

1. Bring guide assembly forward by loosening ball lever screw securing the complete guide assembly in the bottom mainframe, until the brass wearing blocks are positioned just behind the gullet of the sawblade, as shown in Fig. 6. Re-lock complete guide assembly in this position.
2. Set the side wearing blocks just clear of the sawblade so that support can be given to it but does not nip the blade, by adjusting the knurled knob on either side of the guide assembly. When setting the guide blocks care should be taken not to displace the blade from its true vertical position.
3. Loosen thumbscrew securing runner spindle in guide assembly and position runner guide within 1/64" (4mm) of the back of the sawblade in its free position. When correctly positioned re-lock in position.

Brake

The brake is operated by depressing the foot pedal as shown in Fig. 1. This actuates the brake cable and pulls the band brake onto the bottom wheel hub.

The brake should only be applied after the stop button has been pressed.

Table

The table cants 45° to the right from the horizontal and can be locked securely in any position with the locking lever at the rear of the table. The angle to which the table is canted can be seen on a scale at the rear of the table and is indicated by a pointer.

Saw Wheels

A brush is provided on the bottom pulley to remove sawdust. The rubber on the top pulley should be cleared daily to prevent accumulation of sawdust which could cause the blade to run out of a true line.

The saw pulleys must be kept in accurate balance to avoid vibration. It is essential that the rubber on the faces are kept at an even thickness by truing up occasionally. This is done by revolving the pulleys and holding against it a wooden block covered in emery cloth or sandpaper. Care should be taken to ensure that, after truing the wheels have a curved surface with the highest point in the centre of the wheel rim. This is most important for the correct tracking of the sawblade.

Badly worn pulleys should be replaced by new ones. If the machine is used with badly worn pulleys the saw will vibrate, resulting in bad sawing and saw breakages.

We have a service arrangement, which we recommend whereby newly rubbered pulleys can be supplied against the return of existing pulleys. An appropriate charge being made for re-rubbing only. To avail yourself of this service return existing pulleys to:-

BURSGREEN (DURHAM) LIMITED.
Fence Houses Trading Estate,
Houghton le Spring.
Co. Durham.

Removal of Saw Wheels

The top and bottom wheels are identical. To remove a wheel for re-rubbing unscrew the four 3/8" whit nuts around the hub and remove wheel complete leaving the hub on the machine.

Bottom Pulley Spindle

To remove the bottom pulley spindle from the machine, for the renewal of bearings etc, the undermentioned procedure should be followed:-

1. Isolate the machine electrically.
2. Remove the bottom saw pulley by unscrewing the four 3/8" whit nuts around the hub.
3. Unscrew locknut "A", in fig. 7, and remove the hub and key from the spindle.
4. Remove the four hexagon head bolts securing the housing "B" and remove complete spindle assembly in direction of arrow "C". Care should be taken not to damage the threads on the spindle end. When removing the spindle assembly support the weight of complete assembly.
5. With spindle assembly on a bench remove the four hexagon head bolts "D" and remove dustcap.
6. Unscrew locknut "E" and remove rear bearing from housing "B".
7. The front bearing can be driven from the mainframe.
8. If it is desired to remove the rotor from the spindle, loosen the socket head grub-screws securing collar "F" to the spindle and remove. The rotor can now be removed from the spindle.
9. To re-assemble reverse the above procedure.

Top Pulley Spindle

To remove the top pulley spindle bearings the undermentioned procedure should be followed:-

1. Remove the top saw pulley by unscrewing the four 3/8" whit nuts around the hub.
2. Unscrew locknut "A", in fig. 8, and remove the complete top wheel hub assembly and transfer to a bench.
3. Unscrew locknut "B" and remove spindle from hub by gently tapping the end with a wood block. Care should be taken not to damage the threads on the spindle end.
4. Remove circlip "C", then tap out bearings from each end.
5. To re-assemble reverse the above procedure, not forgetting to replace the distance piece "D" in between the bearings and replacing circlip "C".

Maintenance of Bandsaw Blades

A properly sharpened bandsaw blade will give clean, accurate cutting and this is achieved by proper setting and sharpening of the teeth.
Always set the teeth before sharpening.

Setting

In order to cut satisfactorily bandsaw teeth must be set by bending the teeth alternatively out of line of the blade as shown in fig. 9. This presents alternate pairs of teeth, wider than the thickness of the ribbon and prevents the ribbon rubbing in the wood being cut and getting hot.

1. There are two usual ways of setting bandsaw teeth depending generally upon the amount of work to be done.

1. Hand Setting

The points of the teeth are set by using a hand setting tool of the plier type. The points only of the teeth must be set and as a general rule the set on each side is .010" (.3mm). Set is applied in opposite directions for each alternate tooth.

Where hand setting is employed it cannot be ensured that all teeth are cutting and in order to overcome this the teeth should be stoned occasionally. An ordinary fine grit stone is used and the back runner guides should be temporarily brought forward until it is in contact with the back of the blade. The blade should then be run and the stone carefully applied to the teeth each side of the blade. When the saw is subsequently sharpened it will be noted that each tooth has not been marked with the stone, and such

teeth should only be filed very slightly. The remainder of the teeth which have actually been stoned should be filed in the normal manner until the flat caused by the stone disappears. Bandsaws may require stoning approximately once to every six sharpenings

2. Machine Setting

A setting attachment can be supplied to special order for fitting to a special grinding machine which is also available. Also available is a separate inexpensive machine which can be used on a bench. A feature of this machine is that the strikers which push the teeth over are arranged on opposite sides of the blade, and strike adjacent teeth simultaneously. In this way the shock does not damage the body of the band ribbon.

Sharpening

This is normally done by using a triangular section file. Again this operation can be done by hand or machine.

Hand Filing

It is essential to employ an efficient and quick acting vice and round cornered triangular file.

The face of each tooth should be filed across and with the same stroke the back of the following tooth should be filed at the same time as shown in Fig. 10. On stroke of the file should be sufficient to sharpen each tooth, and this stroke should be as light as possible in order to avoid producing a burr. The shape of the gullet is automatically maintained at 60° by the file, whilst the angle of the hook on the tooth is dependable on the position of the file.

For general work approximately 5° of positive hook should be given. A greater or smaller hook should be applied for softer or harder woods respectively. In the case of particularly hard woods a negative rake may be necessary, while a wider tooth pitch than standard may be required for sawing timbers of an abrasive nature, and those containing gum.

Always sharpen square across the face of each tooth and NOT on the bevel, otherwise the saw will vibrate violently, which shatters the steel, and cracks appear causing saw breakages.

Use a file with rounded corners and of triangular section. It is important to keep the gullet of each tooth rounded otherwise cracks will soon appear. Saws must be sharpened at regular intervals and should never be forced to cut with teeth which have become blunt.

Note:-

When reconditioning bandsaw blade it is necessary to set the teeth first before sharpening. This ensures that the face of the tooth is square. If the sharpening was carried out first, the subsequent setting would result in an angular tooth shape being obtained.

Machine Filing

An automatic machine for filing blades is available by special order. Further details of this machine will be forwarded on request.

Plaint Fence (To Special Order)

This fence can be supplied for fitting on either side of the saw depending on the position of the slide bar and is provided with rapid and micro-adjustment.

General Causes of Saw Trouble

1. Crystallisation of the ribbon, produced by the back of the saw rubbing too hard against the back runner guide. The disc should revolve only by contact with the back edge of the saw when actually cutting and then the contact should be as light as possible.
2. Using a blade that is too wide for the radii being cut. In attempting to cut a small

curve with a saw too wide the blade tends to twist against the guides causing friction and overheating which destroys the temper in the steel.

3. Not enough set.
4. Sharpening with a sharp cornered file or the face of the teeth not square to blade.
5. Bad brazing due to dirty joints or badly prepared laps or incorrect positioning of the laps, causing a bump on the back of the blade at the joint.

Smallest Radii Which May Be Sawn With Given Width Of Blade

Width of Blade	1/8"	3/16"	1/4"	3/8"	1/2"
	3mm	5mm	6mm	10mm	13mm
Smallest Radii	1/8"	5/16"	5/8"	1.7/16"	2 1/2"
	3mm	8mm	16mm	37mm	64mm
	5/8"	3"	1"		
	16mm	19mm	25mm		
	3 3/4"	5.7/16"	7 1/4"		
	95mm	138mm	184mm		

Note:- Always use the widest blade compatible with this chart.

Folding Bandsaw Blades

Bandsaw blades are normally folded in thirds. This is done by holding the blade firmly in both hands, with the palms upwards. Turn the hands over, this will twist the blade. Do not let the blade slip or turn in the hands. Lower the blade to the ground and it will almost automatically fall into three loops. The blade should be kept in a safe dry place.

EXTRA EQUIPMENT

Bandsaw Blades

Spare bandsaw blades of the correct length, ready set and sharpened, for wood cutting are available from stock. Where it is preferred bandsaw blading in strip form can be supplied for customers to make up their own blades. The bandsaw strip is offered either toothed only or toothed, sharpened and set.

In addition to woodcutting we can supply bandsaw blades for plastics, bonded wood, non-ferrous metals, meat, etc provided that the correct machine speeds are available.

Taper Triangular Files for Hand Use

Length.	6"	8"	10"
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The edges of these files have rounded corners to produce the round gullet which prevents saw cracks.

Bandsaw Filing Vice

A specially designed vice is available for holding band or fret saws also handsaws jaws are 17" (430mm) long and will take saws up to 2 1/2" (64mm) wide. Jaws open instantaneously by lever handle.

Wadkin "Loroch" Bandsaw Grinding Type "H. H."

This machine is fully automatic and ensures that each tooth is sharpened to the correct shape and depth.

Any length of saw can be filed up to a maximum width of 2.3/8" (60mm) with teeth up to a.3/16" (30mm) pitch and 3/4" (19mm) deep.

A setting attachment can be supplied to special order for fitting to the machine and Bandsaws of any length up to 2' (50mm) wide and 5/8" (16mm) pitch can be set using this attachment.

Wadkin Electric Bandsaw Brazer "H, E."

This machine efficiently brazes bandsaws, from $\frac{1}{4}$ " (6mm) to 1" (25mm) wide which have been broken. The two ends of the saw are firmly held by the clamps, and controlled heat applied electrically.

A small quantity of solder and brazing compound are supplied with the machine. The actual brazing takes from 25 to 45 seconds according to the width of blade. Before brazing the ends of the sawblade must be carefully bevelled.

A separate instruction chart is supplied with the Brazer.

Wadkin Bandsaw Setting Machine Type B/SS

For bandsaws up to $1\frac{1}{4}$ " (32mm) wide x $\frac{1}{2}$ " (13mm) pitch.

All adjustments are quickly and easily made to this robust and thoroughly practical tool. It is usually operated by hand and setting is at the rate of two teeth per revolution of the wheel. When preferred the machine may be power driven by a flat belt on the pulley face of the handwheel.

SPARES FOR 30" BANDSAW TYPE 30" BZB

Standard 50 cycle Machine

Brooks Rotor & Stator Unit, 35/18, 3HP, 750rpm

MEM Starter, 84 ADS/FO

Bandsaws 17'-6" long by either $\frac{1}{4}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ ", $\frac{5}{8}$ ", $\frac{7}{8}$ ", 1", $1\frac{1}{4}$ ", or $1\frac{1}{2}$ "

Brass Blocks for Guides

A-1024/48

Bowden Brake Cable

A-1037/32

Bearings

Top Wheel Spindle Bearings 2-Off 5G88506 (SKF)

Bottom Wheel Spindle Bearings 2-Off FBC 6208 FF

Bandsaw Guide Bearings 2-Off 6205 2Z (SKF)

Saw Tension Screw Bearings 1-Off W $\frac{3}{4}$ B (HOFF)