RECORD MACHINE DETAILS	DISTRIBUTOR
MODEL	
SERIAL No	
DATE of PURCHASE	
VOLTAGE	
PHASE	
CYCLES	
QUOTE THIS INFORMATION WHEN REQUESTING SERVICE OR SPARES.	

This Machine is engineered to a high standard of construction and performance. Attention to maintenance and service will be repaid by many years' trouble-free operating.

STARTRITE®

Model 502

(DUAL SPEED)

BANDSAWING MACHINES

HANDBOOK

36E

A.L.T. Saws & Spares Ltd
Startrite Machine Specialist
Unit 15, Pier Road Industrial Estate
Gillingham
Kent
ME7 1RZ
Tel/Fax: 01634 850833
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QUALITY BANDSAW BLADES

TO SUIT THE 502 MODEL

ORDER LINE- 01634 850833

A.L.T. SAWS & SPARES LTD

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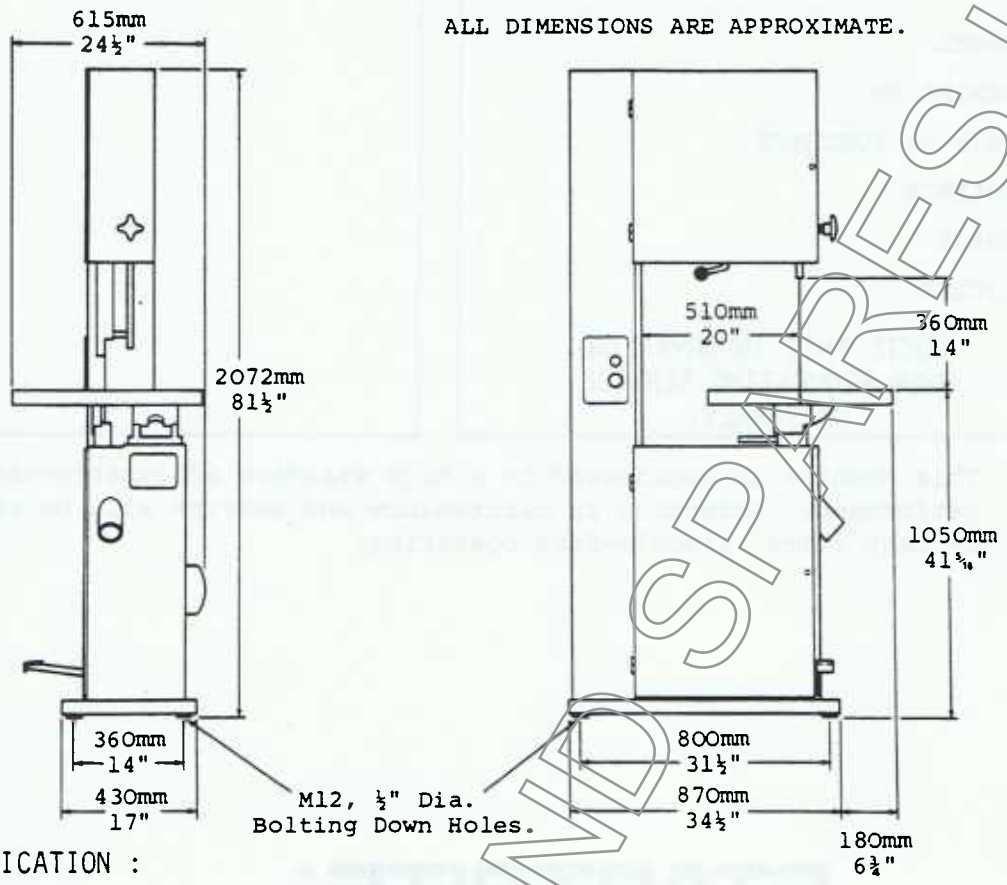
FOUNDATION PLAN FOR MODEL 502 BANDSAWING MACHINE.

ALL DIMENSIONS ARE APPROXIMATE.



SPECIFICATION :

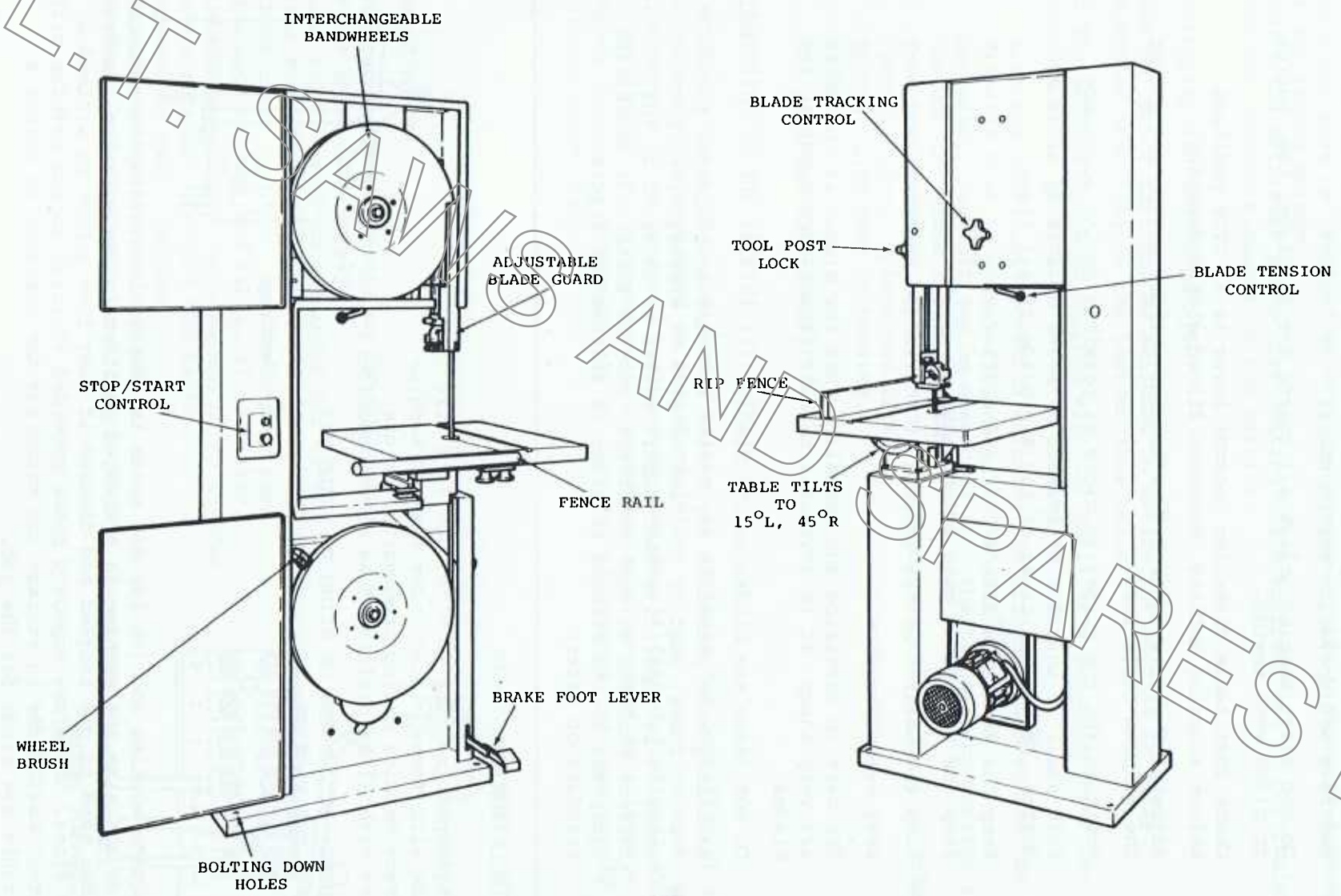
Model 502	-	Two Speed Bandsawing Machine
Blade Speed	-	1372 m/min., 4500 ft/min. High 732 m/min., 2400 ft/min. Low
Wheel Diameter	-	521 mm, 20½"
Motor	-	1.5 kw., 2 h.p. 1440 r.p.m.
Electric Supply	-	220/240 Volt 1 Phase 50Hz 220/380/415 Volt 3PH 50Hz
Blade Length	-	4140mm, 163"
Max. Blade Width	-	25mm, 1"
Weight	-	240 kg. 529 lbs.

FOR BEST RESULTS USE A.L.T. SAW BLADES

WHEN ORDERING PARTS, PLEASE STATE:-

1. Quantity required.
2. Part No. (where applicable) and description.
   Specify power supply for electrical components.
3. Machine Model and Serial No.

NOTE: ILLUSTRATIONS MAY VARY IN DETAIL, ACCORDING TO MODEL.



GENERAL LAYOUT OF MODEL 502 BANDSAWING MACHINE.
(DETAILS MAY VARY ACCORDING TO MODEL)

OPERATING SAFETY PRECAUTIONS.

Before attempting to operate machine, become familiar with the controls and operating instructions.

Do not start machine unless all guards are in place, keep guards in place when sawing.

Check that table direction control lever is at STOP position before starting machine (Machines fitted with Hydraulics).

Adjust and secure table before loading workpiece. (Do not exceed the maximum table load).

Position the top guides as close as possible to the workpiece.

Hold small or unstable workpieces by means of a clamp or other device. Keep hands clear of the saw blade at all times.

Keep the work area free of tools and off-cuts.

Stop the machine to make adjustments.

Stop the machine before leaving it unattended.

Wear eye protection.

Use care in uncoiling and installing new saw blades as the teeth are very sharp. It is advisable to wear gloves when handling saw blades.

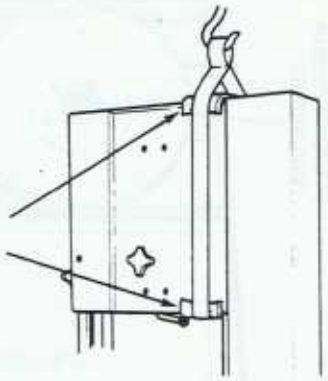
Do not leave saw blades on the floor.

Machining some materials may create a hazard to health in the form of fumes, dust or the risk of fire or explosion. In such cases it is imperative that expert advice is obtained on the correct handling of such materials, and the fitting of additional equipment to the machine in order to achieve the required standard of safety.

INSTALLATION.

To transport machine to site, use fork lift truck with forks placed under base of machine (steady machine during transport), or use hoist with sling positioned as shown opposite.

WARNING: ATTACHMENT OF SLING TO TABLE MAY DAMAGE THE MACHINE.



Adequate working and job lay off space is essential to efficient operation, so do not site the machine in a cramped position in the workshop. Bandsaw blades tend to get tangled and damaged if hung from a hook or stacked on the floor, therefore cupboard space provided adjacent to the machine will protect saw blades in storage and encourage the operator to select a suitable saw blade for the job.

The base of the machine is provided with four fixing holes (see page 1 for appropriate dimensions) to accept ½" diameter anchor bolts (not supplied),

INSTALLATION (CONTINUED).

but the machine may be fixed in position with resilient mounting pads secured by adhesive in order to avoid damage to the floor. Where necessary the floor must be levelled so that the machine stands with equal firmness at all fixing points.
Remove the anti-rust protective coating where applied, and in particular from the working elements of the machine.

ASSEMBLING BANDSAWING MACHINE.

CAUTION: Motor must not be switched on unless the machine is fully assembled according to the instructions below.

If the machine has been shipped with the table as a separate item, re-assemble table to machine in the following manner:-

1. Lift the table into position allowing the trunnion to seat and the 20mm diameter bolt to pass through the slot in cradle. Where necessary, the bolt may be assembled into the trunnion by passing it through the table insert aperture.
2. From the underside of the cradle platform, assemble in bolt on order:-
   Spring Housing, spigot end first.
   Spring, into body of housing.
   Washer.
   Nut, using spanner supplied.

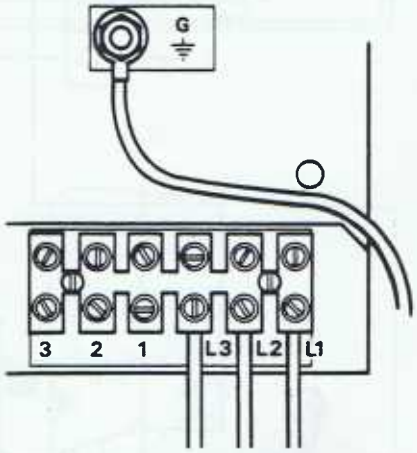
CONNECTION TO THE ELECTRICITY SUPPLY.

IMPORTANT: Check that the supply voltage is suitable for operation of the machine. (Voltage stamped on serial plate).
Link supply leads to fused isolator on machine, if fitted (optional extra).
If machine is not equipped with a fused isolator, proceed as follows:-
Remove rear cover from machine, by means of six screws and pass supply leads through cable clamp.

THREE PHASE:

The machine will operate on 220/415 volt three phase 50Hz supply.
Link supply leads to terminals L1, L2 and L3 (see Fig.1).
Check motor rotation, saw blade must pass downward through the table. If necessary, interchange supply leads L1 and L3 to reverse motor rotation. Connect the earth lead (green) to earth terminal.
Recommended cable size : 1.5mm^2

EARTH TERMINAL



THREE PHASE
MAINS SUPPLY.

Fig.1.

CONNECTION TO THE ELECTRICITY SUPPLY (CONTINUED).

SINGLE PHASE:

The machine will operate on 220/240 volt single phase 50Hz supply.

Link live supply lead to terminal L1, and neutral supply lead to terminal N (see Fig.2). Connect the earth lead (green) to earth terminal.
Recommended cable size : 1.5mm^2

IMPORTANT : IN ALL CASES THE MACHINE MUST BE EFFECTIVELY EARTHED.

The service of a competant electrical engineer must be obtained if there is doubt on any point regarding electrical installation.

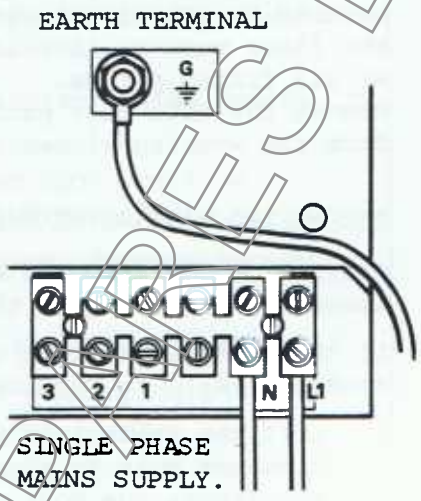
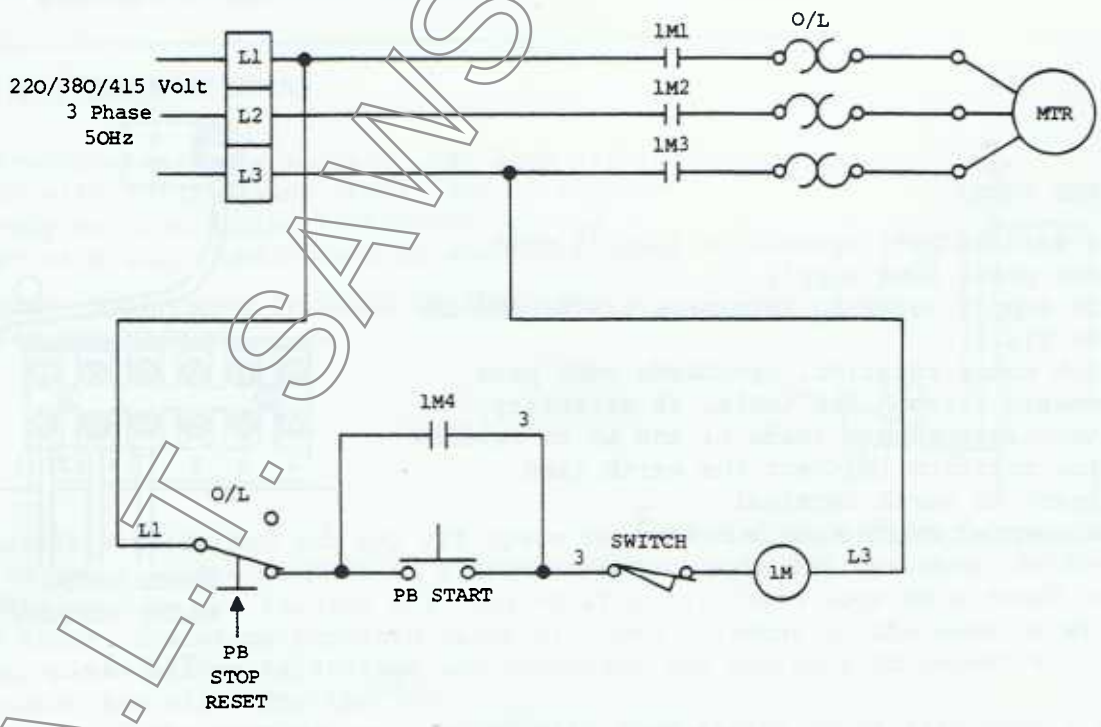
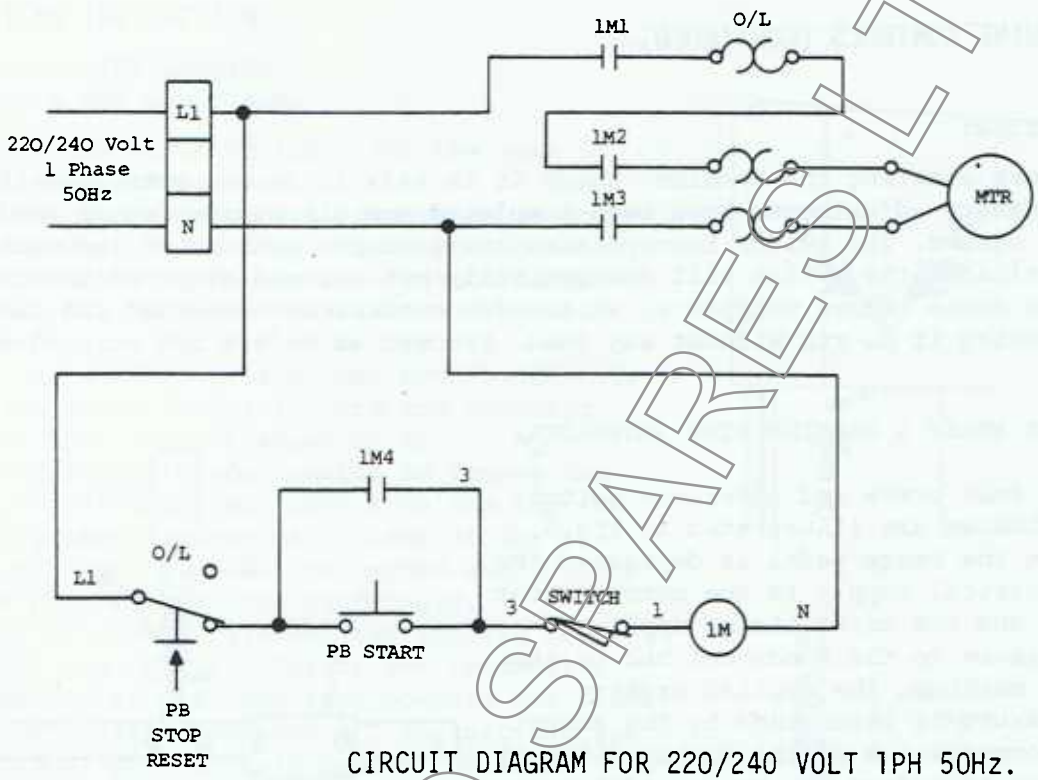


Fig.2.



CIRCUIT DIAGRAM FOR 220/380/415 VOLT 3PH 50Hz.



CIRCUIT DIAGRAM FOR 220/240 VOLT 1PH 50Hz.

SPEED SELECTION.

The 'Sawing Guide Chart' (Page.12) gives a guide as to the speed required for different materials. The two speeds available on this machine are obtained by placing the vee belt in the appropriate pulley grooves. Before changing speed isolate the machine from the electricity supply. Release the blade tension, and remove the saw blade. To obtain access to the pulley, remove the five lower bandwheel screws (M8) and the bandwheel from the location hub. Slacken off the four screws holding the motor flange and by lifting and supporting the motor, release the tension on the vee belt, and place it in the other grooves. (See Fig.3). Re-tension the vee belt and tighten the motor flange screws. Replace the bandwheel and secure with the five screws.

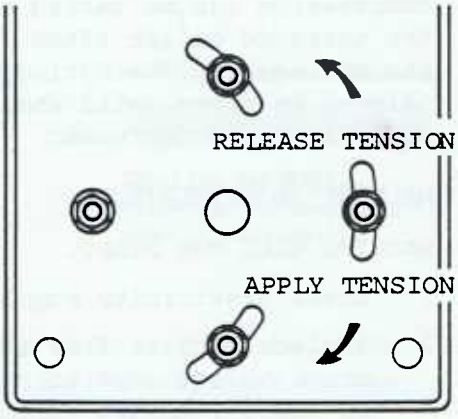


Fig.3.

MACHINE CONTROLS.

BLADE GUARDS :

The upper blade guard is attached to the tool post and is automatically positioned when the blade guides are adjusted. NOTE:- The guard should be positioned as close as possible to the workpiece and set using the tool post lock (see Fig.4).

The lower blade guard is designed to give under table protection at all angles of table tilt and must be kept in position when the machine is in use.

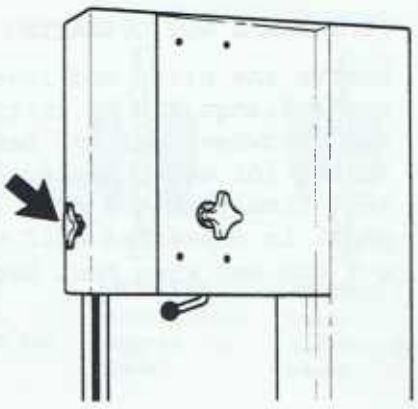


Fig.4.

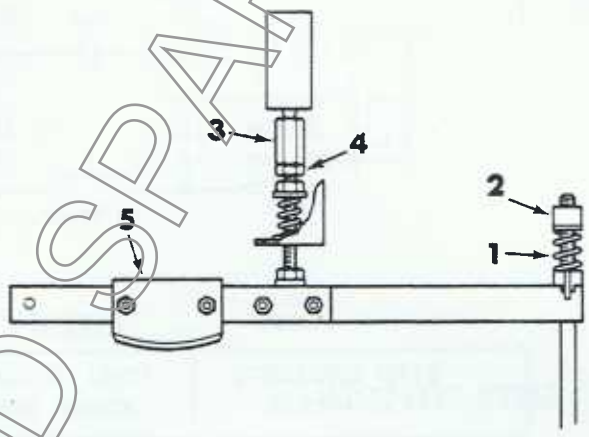
MACHINE CONTROLS (CONTINUED).

CUTTING:

Before starting the machine, check it is safe to do so. Make sure that all necessary adjustments have been completed and all guards are in position and secure. The switch incorporates overload protection. If the machine is overloaded the switch will automatically cut-out and stop the machine. In such cases remove workpiece, wait a few minutes and re-start the machine allowing it to run without any load. Proceed as before but using less force.

FOOT BRAKE & MACHINE STOP INTERLOCK.

The Foot brake and interlock switch mechanism are illustrated in Fig.5. When the brake pedal is depressed the electrical supply to the motor is cut off and the brake lining applies pressure to the bandwheel hub to stop the machine. The applied braking pressure is determined by the amount of compression on the spring (Item.1) which transfers the brake pedal action to the brake shoe. The amount of compression can be varied by adjusting the threaded collar (Item.2) on top of the spring, but the spring must not be allowed to close solid when the brake pedal is fully depressed.



View from front of machine with lower diaphragm omitted.

Fig.5.

MACHINE ADJUSTMENTS.

MACHINE WILL NOT START.

1. Check electricity supply.
2. Isolate machine from electricity supply and after removing rear cover check that the switch nut (Item.3) is depressing the switch plunger by 3mm ⅛". Adjust switch nut if required and set with locknut (Item.4)
3. If motor cuts out when in use the machine is being overloaded. The starter will re-set in a few minutes and the machine can then be started.

FOOT BRAKE NOT OPERATING.

Remove saw blade and lower bandwheel , slacken off four screws holding the motor flange and by lifting and supporting the motor, remove the vee belt and bandwheel pulley. Remove brake shoe (Item.5) and examine the brake lining for wear. Replace shoe if required. Reposition the brake shoe to seat firmly on the drum (Inner face of vee belt pulley) when the brake pedal is depressed half way. Reassemble in reverse order. If motor does not cut out when Foot brake pedal is depressed see note 2 above.

OPERATING INSTRUCTIONS.

SETTING UP THE MACHINE/ FITTING A NEW SAW BLADE:

Select a saw blade suitable for the work in hand, see Chart on page 11.
Open both bandwheel doors, remove upper and lower blade guards. Lower the top bandwheel by turning the blade tension control handle 'A' (see Fig.6) anti-clockwise and remove saw blade.
Place selected saw blade over both bandwheels with the teeth facing forward and downward through the table as shown in Fig.7. Apply only sufficient blade tension to remove the slack. It is important that both the top and bottom guides are set back clear of the saw blade so that it is not deflected and follows a true path between the bandwheels.
At rear of machine slacken off knurled locking ring 'B' (see Fig.6). Rotate the bandwheels by hand and at the same time operate the blade tracking control handknob 'C' so that the saw blade runs approximately central on the bandwheels, see Fig.8. When saw blade is tracked correctly hold handknob 'C' and lock using knurled locking ring 'B'.

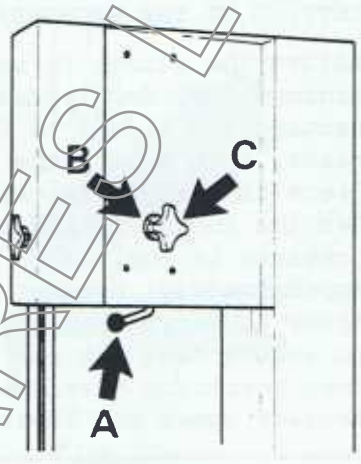


Fig.6.

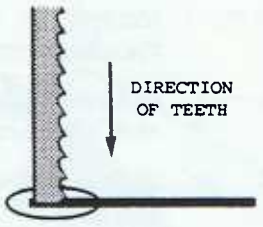


Fig.7.

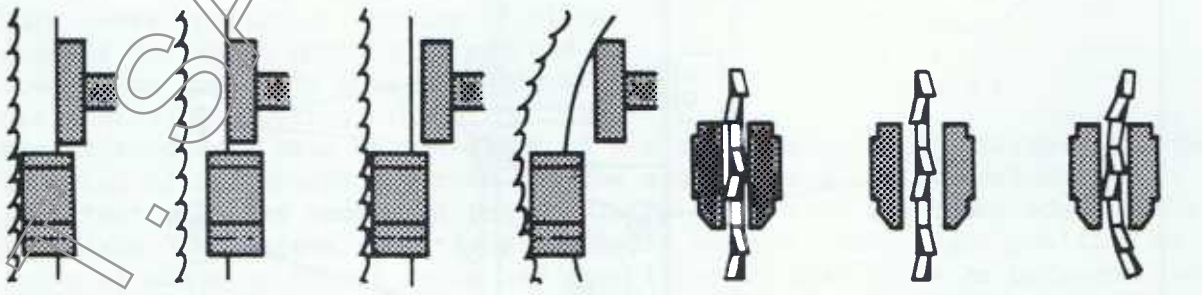
TRACKING CORRECT
Blade runs approximately central on bandwheel.

TRACKING INCORRECT
Blade runs toward front edge of bandwheel.

TRACKING INCORRECT
Blade runs toward back edge of bandwheel.

Fig.8.

When the saw blade is tracking in a satisfactory manner, turn the blade tension control handle 'A' until the appropriate reading appears in the 'window'.
It is important that the guides are set to offer maximum support to the saw blade without deflection, and to permit maximum engagement with the flanks of the saw blade without snagging the set of the teeth, see Fig.9.



CORRECT Maximum support for blade.

INCORRECT Insufficient support for blade from guide.

INCORRECT Insufficient support for blade from thrust rod.

INCORRECT Thrust rod deflecting blade.

CORRECT Maximum support for blade.

INCORRECT Insufficient support for blade.

INCORRECT Guide deflecting blade.

Fig.9.

OPERATING INSTRUCTIONS (CONTINUED)

SETTING UP THE MACHINE/FITTING A NEW SAW BLADE (CONTINUED) :

Adjust the guides to support the saw blade in its natural path with the minimum of side clearance (.002" to .004"). A quick and positive method of setting the guides is to position one guide block to just contact the saw blade, then adjust the second guide block to contact the saw blade plus a piece of (single thickness) newspaper.
Set the thrust roller to support the back edge of the saw blade when finger pressure is applied to the blade teeth. There should be a small gap (.010" approximately) between the saw blade and the thrust roller.
After adjusting the top and bottom guides, rotate the bandwheels by hand to ensure that the saw blade runs free and that all the adjustments have been correctly carried out.
Replace upper and lower blade guards and close both bandwheel doors.

MONTHLY MAINTENANCE.

NOTE : ATTENTION TO MAINTENANCE WILL BE REPAID BY MANY YEARS' TROUBLE-FREE OPERATING.

1 - Remove embedded chips from bandwheel tyres, check for wear and replace as necessary. Adjust wheel brush as required.

2 - Clean and check upper and lower blade guide assemblies. Replace worn parts as required. Check guide settings, and adjust as necessary (see page 9).

3 - Check condition of vee-belt, and replace when necessary.

4 - Check condition of brake shoe and replace when necessary, check foot brake interlock switch and linkage operate correctly, and adjust as necessary. (see Machine Adjustments).

Clean and lubricate working parts as required.
The bandwheels are mounted on sealed-for-life bearings and do not require further lubrication.

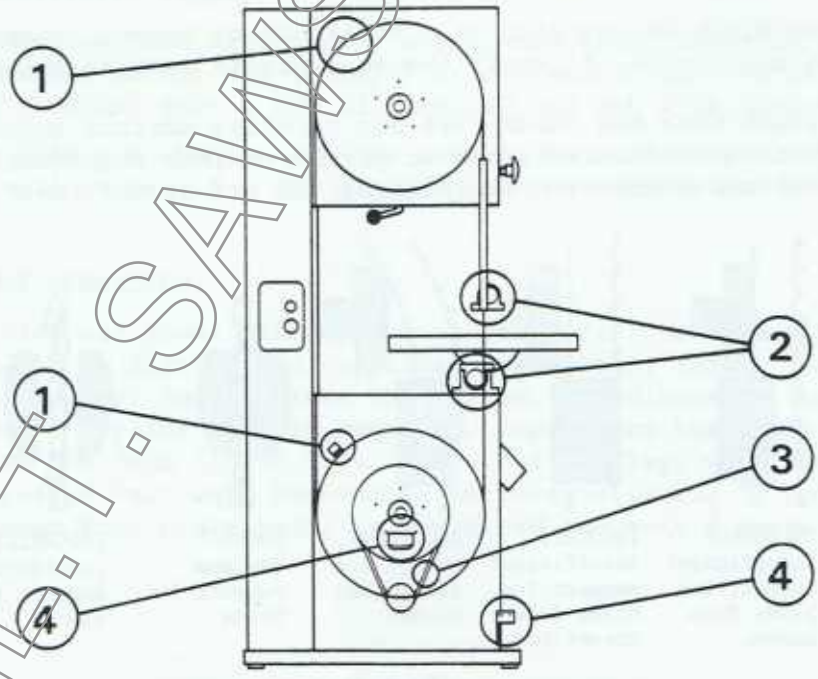


Fig.10 : Maintenance Points.

OPTIONAL EXTRAS.

RIP FENCE & DEPTH STOP:

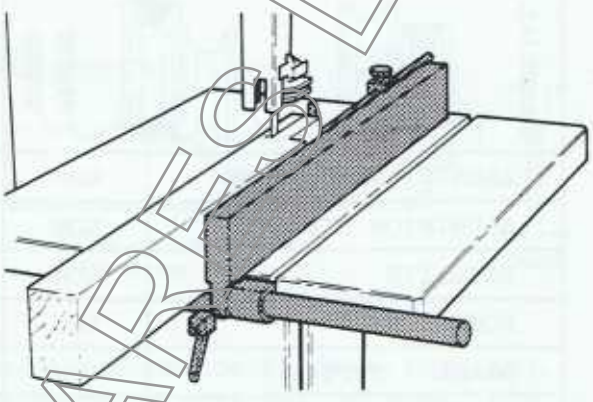


Fig.11.

Fig.11 shows the rip fence and depth stop in use. They are very useful accessories which widens the scope of the machine considerably, as apart from straightforward ripping it makes possible the production of tenons of consistent thickness. When cutting several tenons of the same thickness, set the fence and depth stop, produce the required shoulder dimension and make a single saw cut in each piece, so as to produce one flank of the tenon. Re-set the fence to produce a tenon of the correct thickness, making sure that the same face of the workpiece is against the fence as when making the first cut. In this way, any variation in the width of the workpiece will not affect the finished width of the tenon.
With the rod removed, the depth stop can be swung aside when not required.

MITRE GAUGE:

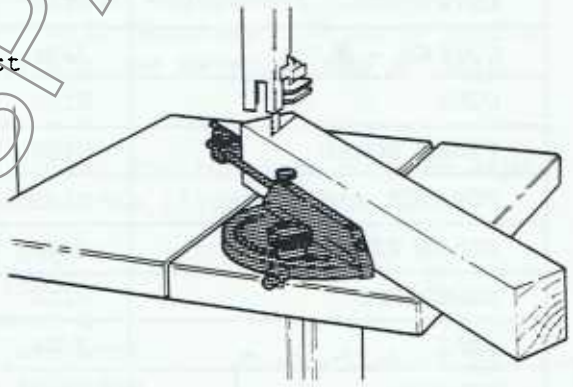


Fig.12.

Fig.12 shows the mitre gauge in use on the machine. Locate mitre gauge into slot in table, set to required angle and position workpiece. Start machine, hold workpiece firmly against mitre gauge and slide along slot in table. Compound mitres are also possible by setting both mitre gauge and table tilt as required.

CIRCLE CUTTING ATTACHMENT:

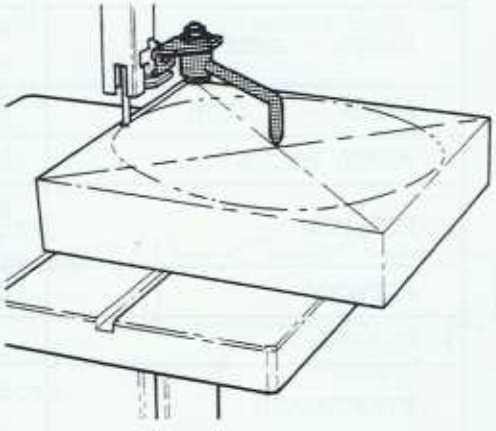


Fig.13.

Select a saw blade to suit the circle to be sawn (see Chart on page 16). The circle cutting attachment is secured to the guide location tenon as shown in Fig.13. This makes repetition cutting of blanks easy as the whole unit is raised and lowered on the guide post, thus avoiding disturbing the setting of the rod. The blanks should be made in the shape of a square just a little larger than the diameter of the proposed circle and the centre and diameter marked. It is important that the centre of the circle is level with the front edge of the saw blade. To achieve this place rip fence against blade, mark position of front of blade on top of fence and move fence so that distance between blade and fence is equal to required radius. Set rod to mark on fence and secure in place. Remove rip fence and raise tool post so rod is clear of workpiece. Produce cut parallel with one side of square and stop when cut meets drawn circle as shown in Fig.13. Lower guide post until point on rod touches workpiece at centre of circle, tap rod gently into workpiece, lock tool post and cut out complete circle.

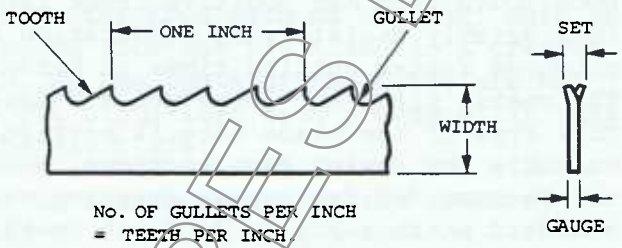
SAW AND SPEED SELECTION CHART.

MATERIAL	BLADE SPEED	MATERIAL THICKNESS			
		UNDER 6 mm, ¼"	6 mm, ¼" TO 12 mm, ½"	12 mm, ½" TO 25 mm, 1"	OVER 25 mm, 1"
ALUMINIUM SECTIONS	LOW	18R	10R	8R	6S
ALUMINIUM DIECAST	LOW	18R			
BAKELITE	LOW	14R	10R	6R	3S
BONE	LOW	10R	8R	6R	3S
BRASS - SOFT	LOW	18R	14R	8R	6R
CARDBOARD CORRUGATED	HIGH	SC	SC	SC	SC
CHIPBOARD	HIGH		6S	3S	3S
COPPER - SOFT	LOW	18R	14R	6R	3S
CORK	HIGH	14R	5W	4W	4W
FIBRE BOARD	HIGH	18R	14R		
FORMICA	HIGH	18R			
GLASS FIBRE	LOW	18R	14R	10R	6H
HARDBOARD	HIGH	10R			
LEAD	LOW	18R	14R	10R	6R
LEATHER	HIGH	14R			
LINEN	HIGH	KN	KN	SC	SC
PAPER - SHEET	HIGH LOW	10R	6H	10R	6H
PAPER - TISSUE	HIGH	SC	SC	SC	
PAPER MACHE	HIGH	KN	10R		
PERSPEX	HIGH LOW	14R	10R	6R	3S
PLYWOOD	HIGH	10R	8R	6S	3S
RUBBER	LOW	10R	8R	6R	
STRAWBOARD	HIGH LOW	14R	10R	8S	6S
TUFNOL	LOW	14R	10R	6H	
WOOD - LOG	LOW				3S
WOOD - SOFT	HIGH	5W	5W	5W	5W
WOOD - HARD	HIGH	6S	3S	3S	3S
WOOD - WET	LOW				3S
ZINC	LOW	14R	10R	6H	

R = REGULAR TOOTH (METAL CUTTING) S = SKIP TOOTH (METAL CUTTING)
H = HOOK TOOTH (METAL CUTTING) W = WOOD CUTTING KN = KNIFE EDGE
SC = SCALLOPED EDGE NUMBERS DENOTE TEETH PER INCH

BANDSAW BLADES.

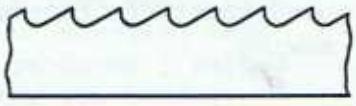
An understanding of the design and application of the various types of saw blades obtainable is essential if the bandsawing technique is to be fully exploited. Selection of the most suitable saw blade for the job is very important as a poor choice can lead to much wasted time and money.



TOOTH PITCH is important if optimum blade performance is to be obtained. Tooth pitch is determined mainly on the basis of material thickness and to some extent on material hardness. For a given material thickness, a tough or abrasive material will require more teeth in engagement than a soft ductile one. Too many teeth in engagement will decrease the tooth loading to the point where the teeth cannot penetrate the material and so skid across the cutting face.

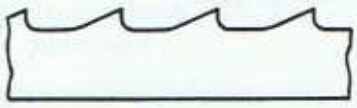
TOOTH FORM refers to the profile of the tooth. The two most popular styles are regular tooth and skip tooth as shown in the illustrations.

REGULAR TOOTH is the standard style for most wood and metal cutting saw blades. The zero front rake and well rounded gullets present a robust tooth with good shock resistance and work penetration properties. It will produce accurate fine finish work in most medium hard materials but tend to clog when used on soft or ductile alloys. Standard pitches are 6, 8, 10, 14, 18, 24 & 32 teeth per inch for metal cutting.



REGULAR TOOTH

SKIP TOOTH form is similar to the regular tooth form but alternate teeth are omitted, a design which allows greater gullet capacity without unduly weakening the body of the blade. Providing the thickness of the material permits, a skip tooth saw blade will give best performance on aluminium and soft alloys. Skip tooth metal cutting blades prove superior to woodcutting blades for sawing deep cuts in hard or wet wood, wood backed laminates and man-made wood products which contain an abrasive bonding agent. For these particular applications, best results will usually be obtained by running the machine on the lower speed. Standard pitches are 3, 4 & 6 teeth per inch.



SKIP TOOTH

BANDSAW BLADES (CONTINUED).

HOOK TOOTH form has positive front rake which considerably assists work penetration and hence produces faster cutting times on harder materials. The coarse pitch and large gullets associated with this type of saw blade make it particularly suitable for sawing deep sections. However, it is not recommended for use on abrasive materials. standard pitches are 2, 3, 4 & 6 teeth per inch.

HOOK TOOTH

TOOTH SET is the angling of the saw blade teeth so that the tips protrude beyond the body of the saw blade. The width of the saw cut produced provides the working clearance necessary for the body of the saw blade and permits some degree of steering to negotiate curves.

STANDARD SET teeth are set alternately to the left and to the right, a style which is popular for cutting soft materials and wood.

RAKER SET saw blades have one tooth set to the left and one tooth set to the right, followed by one unset tooth. This style of set is widely used and is to be preferred for contour sawing.

RAKER SET

WAVY SET saw blades have the teeth alternately set to the left and right in groups or waves. With this formation of tooth set, relatively few teeth are cutting at the side of the kerf and therefore there is some tendency for the saw blade to jam when sawing abrasive materials.

WAVY SET

SAW GAUGE is the actual thickness of the body of the saw blade. Some manufacturers produce special gauge saw blades for specific purposes, but generally saw blades up to and including ½" wide are .025" thick, ⅝" & ¾" wide are .032" thick and 1" blades are .035" thick.

KNIFE EDGE BAND

Knife edge bands are suitable for cutting soft materials such as woven fabrics, sponge, rubber, and corrugated cardboard. Where the nature of the material is fibrous and difficult to sever, wavy or scalloped edge blades are better as the teeth provide a more positive cutting action. Typical applications are cutting cork, filter elements and felt etc. Because these bands separate the material, no dust or swarf is produced and a smooth finish is usually obtained.

SCALLOPED EDGE BAND

WAVY EDGE BAND

BANDSAW BLADES (CONTINUED).

Sometimes even though the machine appears to be in good working condition, the saw blade persists in wandering from the true path of the cut. This is usually due to the workpiece being forced into the saw blade at a greater pace than the saw blade can cope with, or the teeth of the blade are not evenly sharpened and set. Repeat the cut using less feed pressure. If this does not cure the trouble, replace the saw blade.

NOTE : Metal cutting saw blades cannot be resharpened, but the teeth of wood cutting saw blades may be dressed by the following method :-

The saw blade should be sharpened square across and without hook, i.e. the front face of the hook square to the flank of the saw blade. The stroke of the file should be one smooth movement using the whole cutting length of the file and maintaining even pressure from start to finish. Mark the starting point for easy identification and proceed around the saw blade using one stroke per tooth. Should one stroke not be sufficient to produce a sharp tooth, go around the saw blade a second time in preference to repeated strokes to each tooth at one setting. It is important to maintain the correct size and shape of each tooth to avoid weakening the saw blade by forming a sharp corner in the gullet.

It is essential to use a genuine bandsaw file which has three sides and well rounded corners, the normal small file not being suitable. The purchase of a saw vice will prove a real asset as the long jaws permit about 18" or so of the saw blade to be sharpened at one setting.

A saw blade should be re-sharpened as soon as the teeth lose their fine point. Dull teeth tear the fibres of the wood instead of severing them cleanly and the increased feed pressure thus required produces a ragged inaccurate cut and considerably shortens the life of the saw blade.

The saw blade must be in reasonable condition to warrant re-sharpening. A saw blade that shows signs of fatigue, i.e. cracks at the gullets of the teeth, or one that has come into contact with a nail will not usually justify any further effort being expended on it and is best discarded.

Usually it is not necessary to re-set the teeth of the blade as the initial set will last for several sharpenings. The correct amount of set is about .005" each side and adjacent teeth are set in opposite directions. It is important that the saw blade be sharpened after it has been set.

Welding units and brazing units are available for repairing saw blades, or making blades from bulk coil and details of these units will be sent upon request.

BANDSAWING PRACTICE.

Having selected the best saw blade for the job, the most important rule to follow is to allow the saw blade to cut freely. Forcing the workpiece into the saw blade produces a ragged inaccurate cut and considerably reduces the working life of the saw blade.

For contour sawing the width of the saw blade must be chosen with regard to the smallest radius to be sawn, thus a small radius will demand the use of a narrow saw blade. The beam strength and permissible tension decreases rapidly for narrow saw blades and it therefore follows that narrow saw blades are particularly sensitive to excessive stress which will cause stretching and premature breakage through fatigue at high speed. Saw blades which fail through abuse of this kind are useless and must be discarded although the teeth may still be in good condition. It is impossible to be precise as to the smallest radius any given saw blade will cut as so much depends on job conditions and the skill of the operator, but the Chart below offers a basic guide on this point.

BLADE WIDTH SELECTION CHART

BLADE WIDTH		6mm, ¼"	10mm, ⅜"	12mm, ½"	15mm, ⅝"	20mm, ¾"	25mm, 1"
MINIMUM CURVE RADIUS	mm	25	38	62	100	145	190
	ins	1	1½	2½	4	5¾	7½

Several drilled holes at strategic points around the contour may be necessary to negotiate small radii or cut to a sharp corner. Experiment may show that it is advantageous to use a wood cutting blade with increased set when sawing small radii as the increased width of kerf allows the blade more freedom to follow a tight curve. It should be kept in mind, however, that the greater the set the more power is required to make the cut, and hence due care must be exercised to avoid working the saw blade beyond its limit.

It is often found that when cutting a scroll or similar shape the forward cut cannot be completed and the workpiece must be backed off the saw. Care is necessary here to ensure that the wood is backed out gently, and turned at the same time so that the kerf is always in line with the saw. When removing large pieces of waste material, make the shorter end first to avoid backing out of the longer cut.

Three dimensional shapes are easily produced on the bandsaw. A suitable block of square or rectangular section is prepared with the front and side profiles marked out on adjacent faces. Make all the necessary cuts on one face and carefully replace the waste pieces in position. Turn the block on its side and cut out the second profile. With some jobs of this nature it may prove useful to tape the waste pieces in position to retain the block profile for ease of handling.

BANDSAWING PRACTICE (CONTINUED).

Light metals must always be sawn with a metal cutting saw blade running at the low speed. Some aluminium or zinc alloys tend to clog the blade teeth but an occasional application of lubricant in the form of paraffin or wax should solve this problem.

Very little difficulty will be experienced in cutting solid plastic. materials although some have an abrasive nature which tends to shorten the effective life of the saw blade.

Heat generated by sawing friction cause thermoplastic materials to become sticky and there is a marked tendency for the saw blade teeth to be clogged by swarf, particularly when blunt or fine pitch saw blades are used. The tendency to clog can be reduced by lubricating the saw blade with water or wax.

Some materials, the thermosetting phenolics in particular, give off a toxic airborne dust and in order to avoid possible risk to health, advice on dust extraction should be obtained.

COMMON SAWING PROBLEMS.

BLADE WANDERS FROM TRUE LINE :

Excessive feed pressure.
Blade teeth dull or of too fine pitch.
Guide inserts not controlling blade through wear or incorrect adjustment.
Blade tracking incorrect.
Loss of set to one side of saw teeth.

PREMATURE BLADE BREAKAGE :

Excessive feed pressure, and/or too much blade tension.
Worn or incorrectly set guides.
Joint improperly welded and annealed.
Blade too wide for curved cut.
Bandwheels worn.
Blade teeth of too fine pitch.

BLADE BOWS IN DEEP CUT :

Excessive feed pressure.
Blade teeth dull or of too fine pitch.
Insufficient blade tension, and/or blade too narrow for depth of cut.
Blade running off at start of cut.

BLADE TEETH DULL RAPIDLY :

Insufficient feed pressure.
Guide inserts snagging set of teeth.
Blade speed too fast, and/or blade pitch too fine.
Hard spots in material.

TEETH TORN FROM BLADE :

Excessive feed pressure.
Gullets of teeth loading.
Blade speed too fast, and/or blade pitch too coarse.
Material pressure welding to teeth.

BLADE DEVELOPING TWIST :

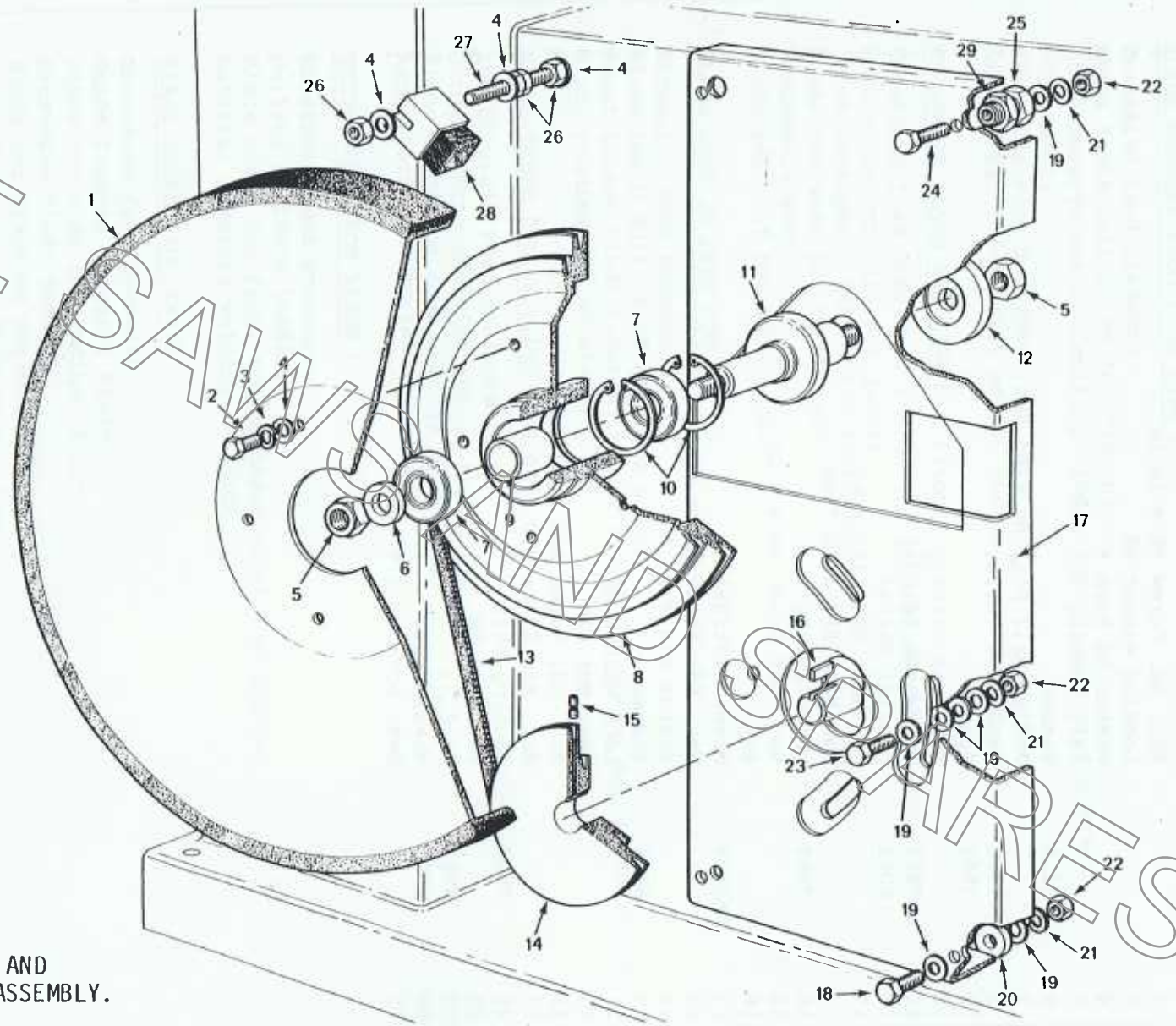
Excessive feed pressure.
Guide inserts snagging blade.
Blade too wide for radius of cut.
Excessive blade tension.
Blade not tracking correctly.
Loss of set to one side of saw teeth.

BLADE VIBRATES IN CUT :

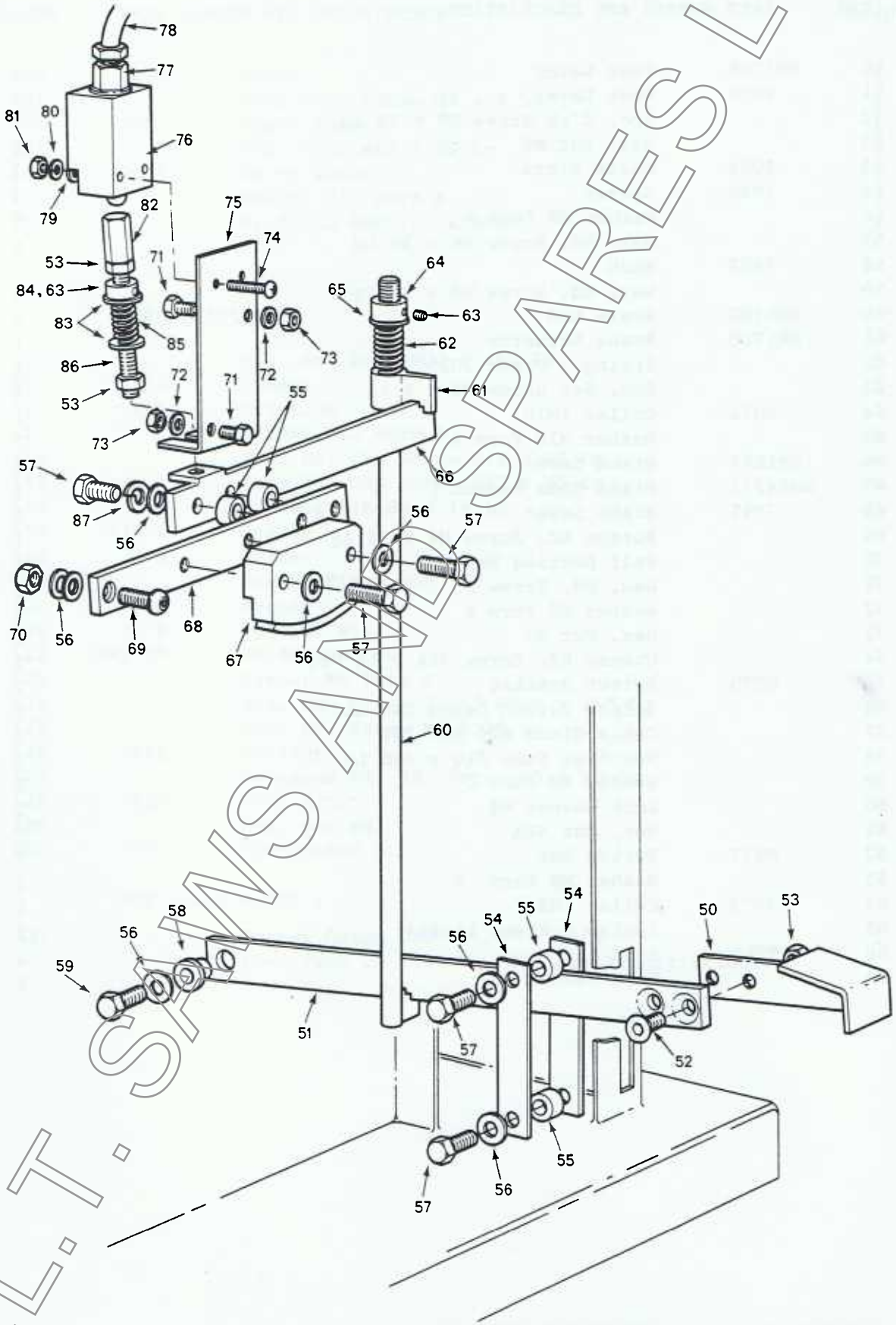
Workpiece not properly seated or securely held.
Blade speed too fast, and/or blade pitch too coarse.
Insufficient blade tension.
Blade not backed up by guide thrust pads.

LOWER BANDWHEEL & MOTOR PLATFORM ASSEMBLY

ITEM	PART NUMBER AND DESCRIPTION		No.OFF
1	7791	Bandwheel	1
2		Hex. Hd. Screw	5
3		Locking Washer	5
4		Washer	8
5		Self Locking Nut	2
6	5216	Washer	1
7		Radial Ball Bearing	2
8	7968	Bandwheel Pulley	1
9	7982	Spacer	1
10		Internal Circlip	2
11	7983	Bandwheel Spindle	1
12	8063	Special Washer	1
13		Vee Belt	1
		Vee Belt	1
14	7969	Motor Pulley	1
15		Soc. Set Screw	2
16		Key	1
17	SM1693	Motor Platform	1
18		Hex. Hd. Screw	2
19		Washer	22
20	8006	Spacer	2
21		Lock Washer	8
22		Hex. Nut	8
23		Hex. Hd. Screw	4
24		Hex. Hd. Screw	2
25	7824	Jacking Bolt	2
26		Hex. Nut	4
27	5717	Stud	1
28	2270	Wheel Brush	1
29		Hex. Locknut	1



LOWER BANDWHEEL AND
MOTOR PLATFORM ASSEMBLY.



FOOT BRAKE AND MICRO - SWITCH ASSEMBLY.

FOOT BRAKE AND MICRO-SWITCH ASSEMBLY.

ITEM	PART NUMBER	DESCRIPTION	No.OFF
50	SM1706	Foot Lever	1
51	8000	Foot Lever	1
52		Soc. C'sk Screw	2
53		Hex. Nut	4
54	8064	Guide Plate	2
55	7986	Spacer	4
56		Washer	9
57		Hex. Hd. Screw	6
58	7993	Bush	1
59		Hex. Hd. Screw	1
60	SM1702	Brake Rod	1
61	SM1700	Brake Actuator	1
62		Spring -	1
63		Soc. Set Screw	2
64	5071	Collar	1
65		Washer	1
66	SM1699	Brake Lever	1
67	SM843/1	Brake Shoe Assembly	1
68	7995	Brake Lever	1
69		Button Hd. Screw	1
70		Self Locking Nut	1
71		Hex. Hd. Screw	2
72		Washer	2
73		Hex. Nut	2
74		Cheese Hd. Screw	2
75	8078	Switch Bracket	1
76		Safety Switch	1
77		Cable Gland	1
78		Westflex Tube	1
79		Washer	2
80		Lock Washer	2
81		Hex. Nut	2
82	8077	Switch Nut	1
83		Washer	2
84	5072	Collar	1
85		Spring	1
86	5717	Stud	1
87		Lock Washer	2

TABLE ASSEMBLY

ITEM	PART NUMBER	AND DESCRIPTION	No.OFF
100	7929	Table	1
101		Soc. C'sk Screw	1
102	2922	Table Insert	1
103		Std. Stud	2
104	2828	Swing Latch	1
105		Washer	2
106		Handknob	2

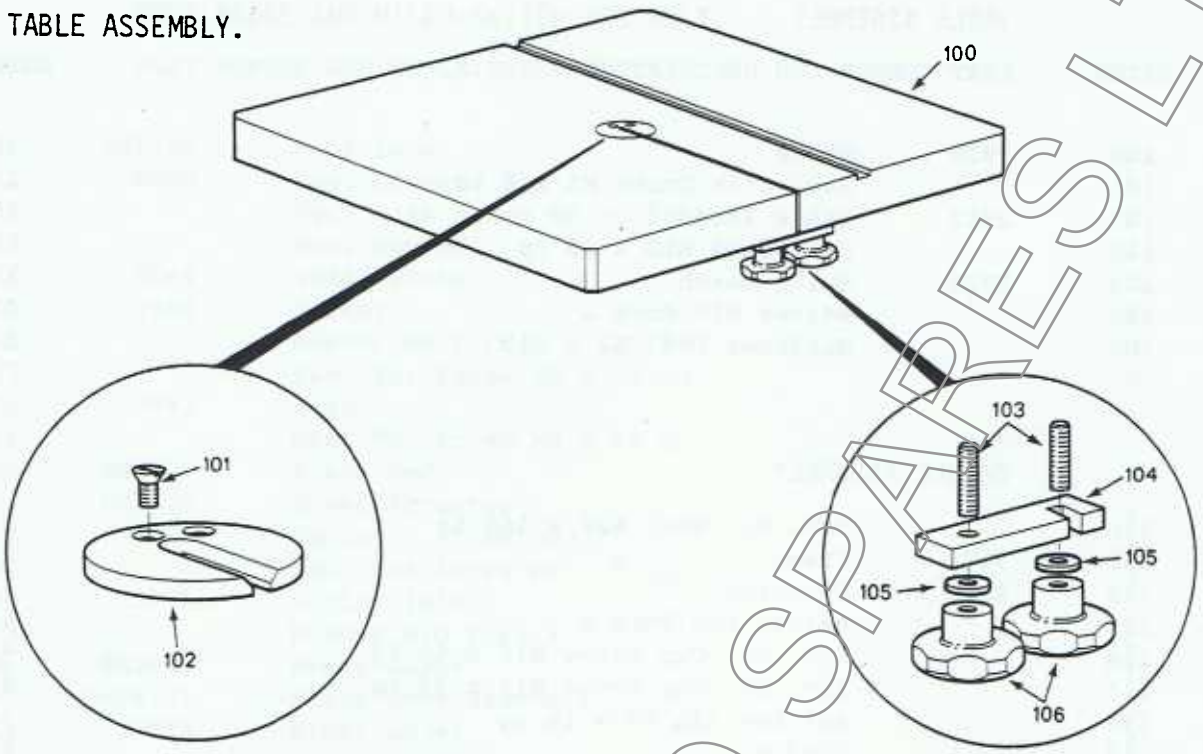
CRADLE ASSEMBLY

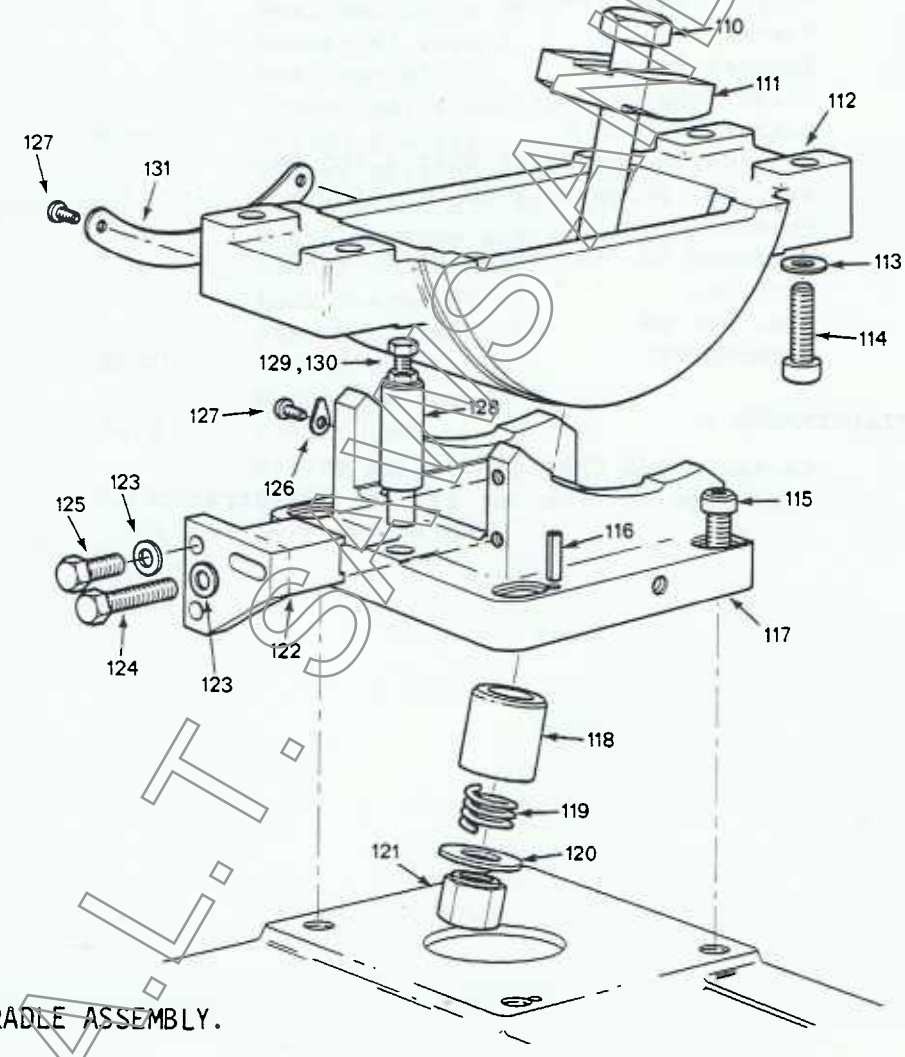
110		Hex. Hd. Bolt	1
111	7874	Clamp	1
112	8156	Trunnion	1
113		Washer	4
114		Soc. Hd. Cap Screw	4
115		Soc. Hd. Cap Screw	4
116		Sel-Lok Pin	2
117	7748/1	Cradle	1
118	7875	Collar	1
119		Spring	1
120	6893	Spacer	1
121	7876	Special Nut	1
122	SM1703	Guide Support	1
123		Washer	3
124		Hex. Hd. Screw	1
125		Hex. Hd. Screw	3
126	2812	Pointer	1
127		Recessed Rd. Hd. Screw	3
128	7336	Stop Pin	1
129		Hex. Nut	1
130	7872	Protractor	1

NOT ILLUSTRATED :

131		Guide	1
		(See Page 25 Item No. 135 for Illustration).	

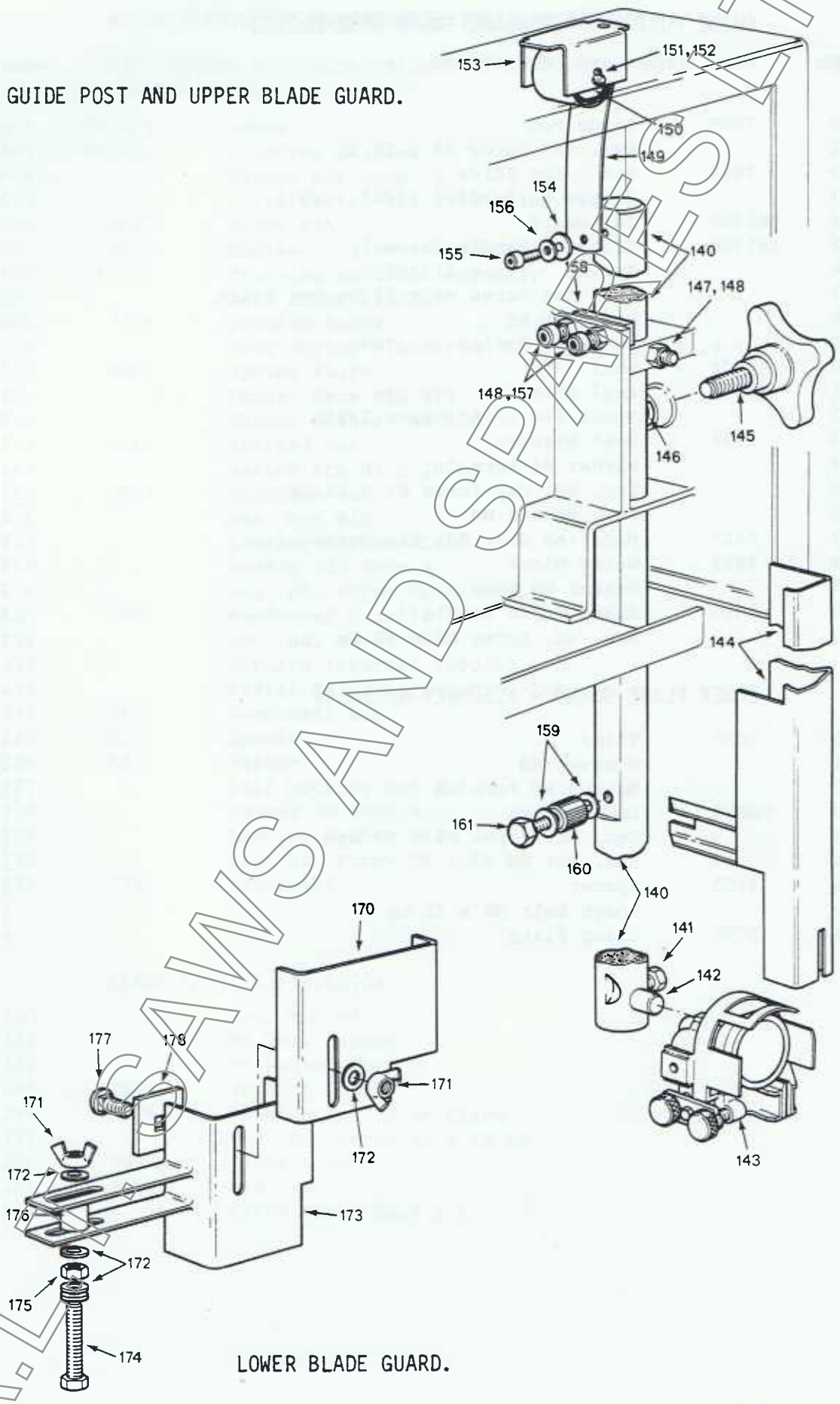
TABLE ASSEMBLY.





CRADLE ASSEMBLY.

GUIDE POST AND UPPER BLADE GUARD.



LOWER BLADE GUARD.

GUIDE POST & UPPER BLADE GUARD ASSEMBLIES.

ITEM	PART NUMBER	AND DESCRIPTION	No.OFF
140	7989	Guide Post	1
141		Hex. Hd. Screw	1
142	7992	Rod - Top Guide	1
143		Guide	1
144	SM1705	Top Guard	1
145	SM1704	Clamping Handle Assembly	1
146		Spring -	1
147		Soc. Set Screw	2
148		Hex. Nut	4
149		Tensator Spring	1
150	4105	Reel	1
151	2379	Reel Spindle	1
152		Split Pin	2
153	2378	Reel Bracket	1
154		Washer	1
155		Soc. Hd. Cap Screw	1
156		Lock Washer	1
157	5313	Modified Soc. Hd. Cap Screw	2
158	4859	Guide Block	1
159		Washer	2
160	5496	Blade Guard Handle	1
161		Hex. Hd. Screw	1

LOWER BLADE GUARD - ASSEMBLY No.SM886

170	5099	Visor	1
171		Wingnut	2
172		Washer	5
173	SM885	Lower Guard	1
174		Hex. Hd. Screw	1
175		Hex. Nut	1
176	5100	Spacer	1
177		Coach Bolt	1
178	5096	Clamp Plate	1

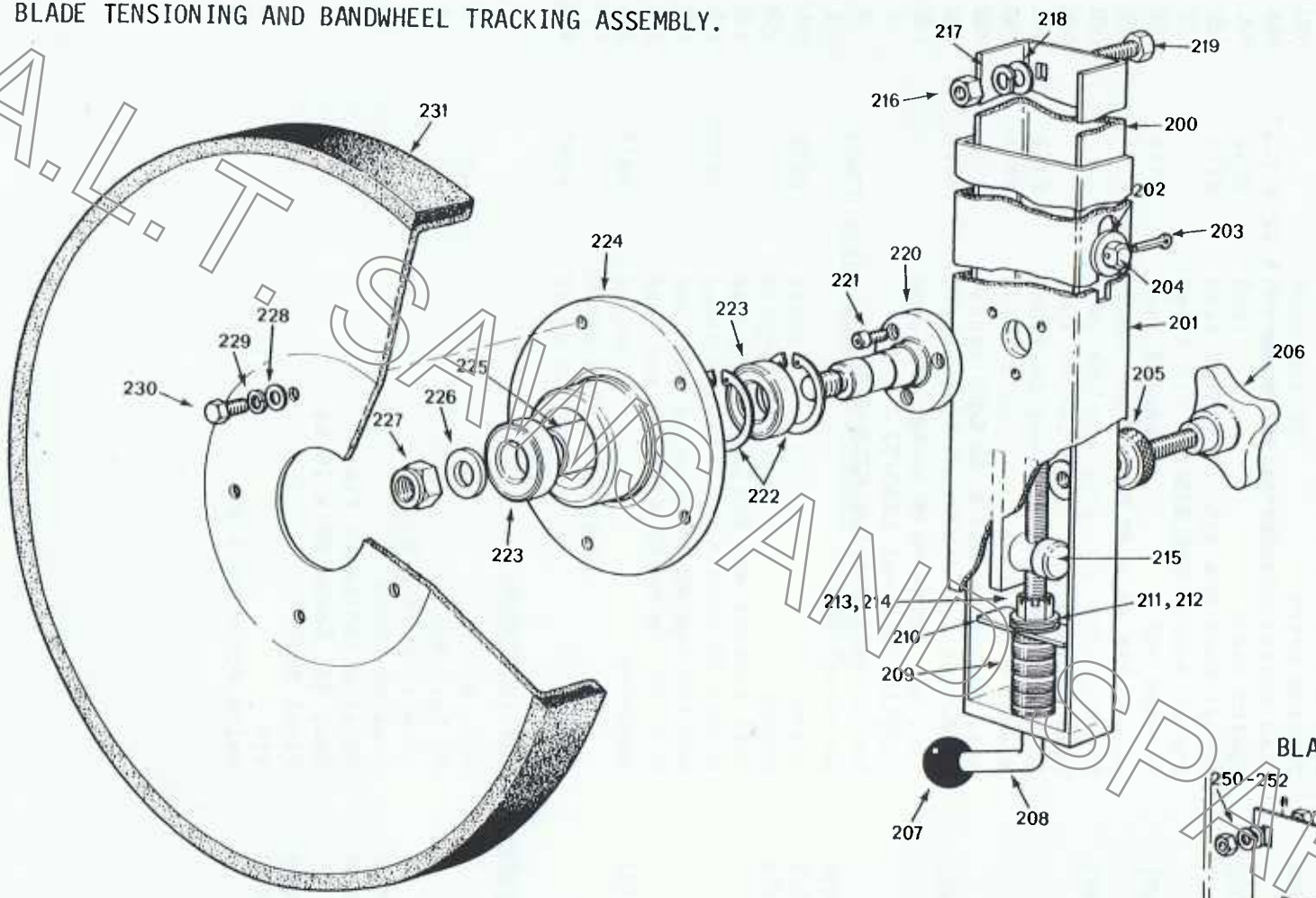
BLADE TENSIONING & BANDWHEEL TRACKING ASSEMBLY.

ITEM	PART NUMBER	AND DESCRIPTION	No.OFF
200	SM1694	Guide	1
201	SM1695	Tracking Channel	1
202		Washer	2
203		Split Cotter Pin	2
204	8003	Pivot Pin	1
205	8020	Locknut	1
206	SM1727	Tracking Handknob Assembly	1
207		Ball Knob	1
208	7996	Tension Screw	1
209		Disc Spring -	32
210	8002	Spring Plate	1
211		Thrust Race	1
212		Thrust Washer	2
213	8001	Slotted Nut	1
214		Selloc Pin	1
215	7967	Trunnion Nut	1
216		Hex. Nut	4
217		Locking Washer	4
218		Washer	4
219		Hex. Hd. Screw	4
220	7981	Bandwheel Spindle	1
221		Soc. Hd. Screw	3
222		Circlip Internal	2
223		Radial Ball Bearing	2
224	7978	Bandwheel Hub	1
225	7982/1	Spacer	1
226	5216	Washer	1
227		Self Locking Nut	1
228		Washer	5
229		Locking Washer	5
230		Hex. Hd. Screw	5
231	7791	Bandwheel	1

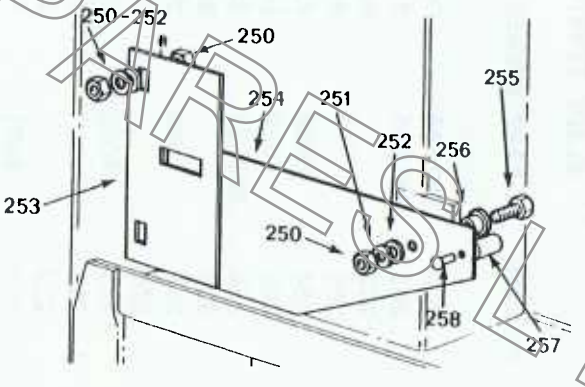
BLADE TENSION INDICATOR.

250		Hex. Nut	5
251		M5 Lock Washer	3
252		M5 Washer	3
253	7878	Tension Plate	1
254	8079	Tension Indicator Plate	1
255		Hex. Hd. Screw	1
256	7839	Pivot Bush	1
257	4906	Pin	1
258		Drive Screw	1

BLADE TENSIONING AND BANDWHEEL TRACKING ASSEMBLY.



BLADE TENSION INDICATOR.



OPTIONAL EXTRAS. RIP FENCE KIT - ASSEMBLY No.SM1713

ITEM	PART NUMBER AND DESCRIPTION		No.OFF
270	8071	Fence Rail	1
271	2924	Locking Pad	1
272	8069	Clamping Stud	1
273		Locknut	1
274		Adjusting Handle	1
275	8075	Fence Casting	1
276		Button Hd. Screw	2
277	SM1714	Fence	1
278		Hex. Hd. Screw	2
279		Lockwasher	2
280		Washer	2
281	8074	Spacer	2

CIRCLE CUTTING ATTACHMENT - SM1720

ITEM	PART NUMBER AND DESCRIPTION		No.OFF
300		Hex. Nut	1
301	4919	Washer	1
302	8104	Bracket	1
303	8107	Centre Rod.	1
304	8105	Clamping Sleeve	1
305	8106	Clamping Bolt	1
306		Hex. Hd. Screw	1
307		Hex. Nut	1
308		Lockwasher	1
309		Washer	1

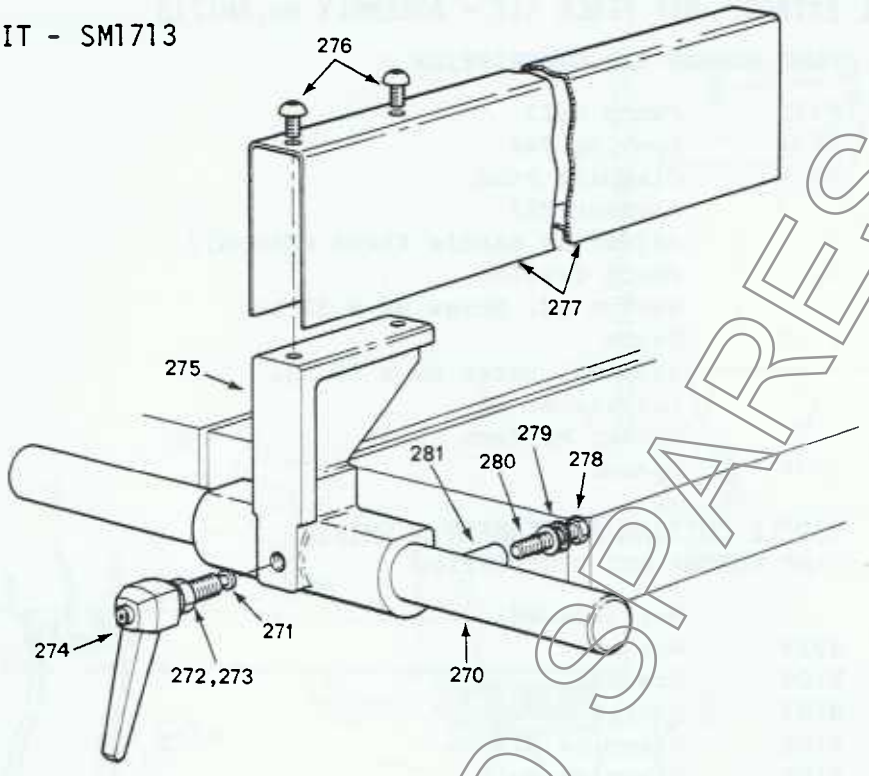
DEPTH STOP - ASSEMBLY No.SM1734

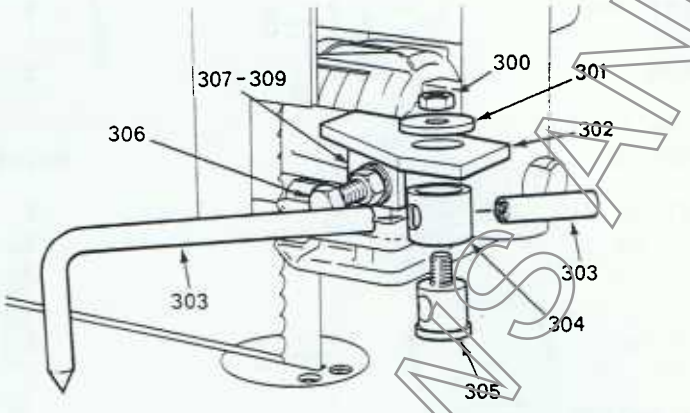
ITEM	PART NUMBER AND DESCRIPTION		No.OFF
320		Handknob	2
321	7988	Stud	1
322		Hex Nut	2
323	8130	Stop Rod	1
324	8145	Stud	1
325	8129	Clamping Block	1

MITRE GAUGE ASSEMBLY - SM1522.

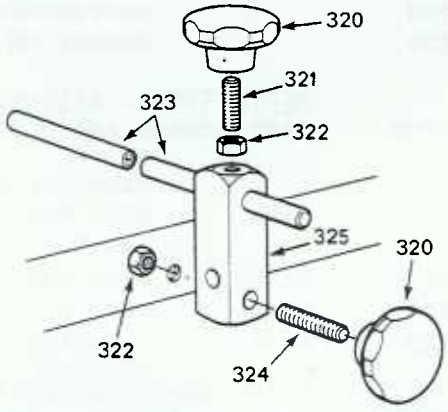
ITEM	PART NUMBER AND DESCRIPTION		No.OFF
330		Sel-Lok Pin	2
331	7451	Tenon Strip	1
332		Soc. Set Screw	1
333	8068	Knob	1
334	7794	Block	1
335		Cheese Hd. Screw	2
336		Spring	1
337	7793	Location Pin	1
338	7453	Stud	1
339		Hand Knob	1
340	7436	Mitre Gauge Body	1
341	7486	Thumb Screw	3
342		Soc. Set Screw	1
343	7485	Stop Bar	1
344	1507/1	Bridge Piece	1
345	7454	Pivot Pin	1
346	7484	Clamp Bar	1

RIP FENCE KIT - SM1713

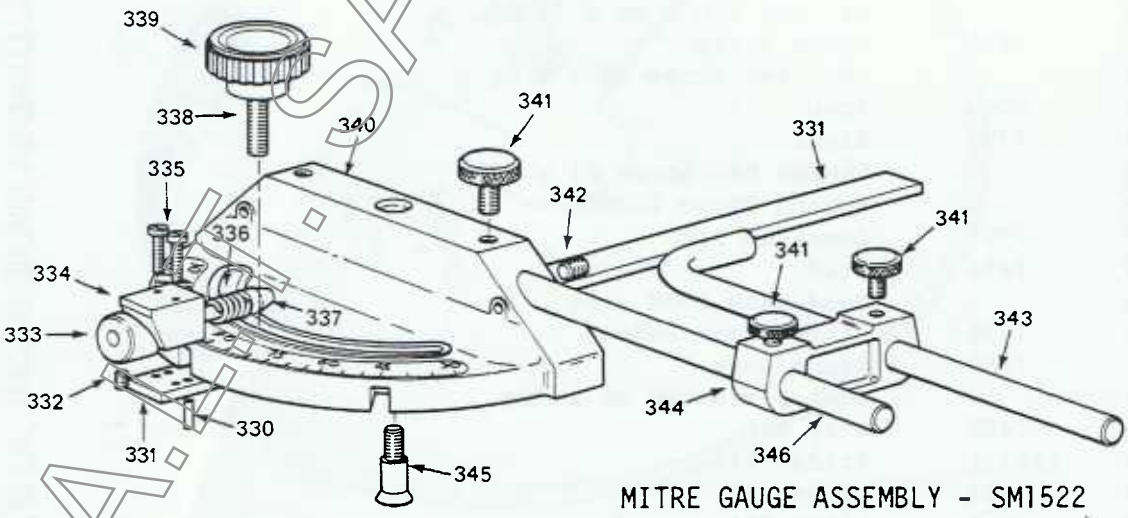




CIRCLE CUTTING ATTACHMENT - SM1720



DEPTH STOP ASSEMBLY - SM1734



MITRE GAUGE ASSEMBLY - SM1522