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

Model 352

DUAL SPEED
BANDSAWING MACHINES

BQ10028

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

ISSUE 4 16-01-91 RF10506

QUALITY BANDSAW BLADES

TO SUIT THE 352 MODEL

ORDER LINE- 01634 850833

A.L.T. SAWS & SPARES LTD

Unit 15, Pier Road Industrial Estate

Gillingham

Kent

ME7 1RZ

www.altsawsandspares.com

A.L.T. SAWS AND SPARES LTD

PART NUMBER STRG – UPPER – £82.50+vat
PART NUMBER STRG – LOWER – £79.50+vat

These precision roller guides are manufactured in the UK specifically for the older Startrite models 301 – 351 - 352, refer to the chart below for all models and recommended blade widths.
There is NO drilling, filing or any modification required unlike many cheap after market guides currently on the market.
Manufactured in steel and aluminium, these guides will make a very good saw even better, they give superb blade control have low heat generation to the blade and produce no sparks.
Both side support rollers and thrust roller are adjusted by a cam system giving precision setting longer, and allows full contact to the blade, this eliminates any blade twist, cutting contours will particularly appreciate the blade control.

Although available as upper and lower guide assemblies some customers may only wish to change the upper set as this takes on 80% of the work.

STARTRITE MODEL	STRG – UPPER RECOMMENDED BLADE WIDTH		STRG – LOWER RECOMMENDED BLADE WIDTH	
	MAX	MIN	MAX	MIN
301,301E,301S	5/8"	1/4"	1/2"	1/4"
351,351E,351SE,351S	3/4"	1/4"	1/2"	1/4"
352,352S	3/4"	1/4"	1/2"	1/4"
RS1 (Sold Under The Record Power Range)	5/8"	1/4"	1/2"	1/4"
RS2 (Sold Under The Record Power Range)	3/4"	1/4"	1/2"	1/4"

SPECIFICATIONS

Model 352 Vertical Bandsaw:-	350mm, 13 3/4" Throat, Dual Speed.
WHEEL DIAMETER:-	355mm, 14"
MOTOR:-	0.75 kw., 1 h.p., 1470 r.p.m.
ELECTRICAL SUPPLY:-	220/230 Volt, 1 Phase, 60Hz. or 110/115 Volt, 1 Phase, 60Hz. or 440/480 Volt, 3 Phase, 60Hz.
MAX. BLADE WIDTH:-	20mm, 3/4"
MAX. DISTRIBUTED STATIC TABLE LOAD:-	27 kg., 60 lbs.
GROSS WEIGHT:-	118 kg., 260 lbs.
TOTAL HEIGHT:-	1790mm, 70 1/2"
TOTAL WIDTH:-	545mm, 21 1/2" 585mm, 23 1/2' (With optional isolator switch)
TOTAL LENGTH:-	670mm, 26 3/8"

NOTE: ILLUSTRATIONS MAY VARY ACCORDING TO MODEL.

HEALTH & SAFETY

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

Persons under the age of 18 years should not operate this machine, except under supervision during a course of training.

BEFORE OPERATING THIS MACHINE ENSURE THAT:

All guards and fences are securely fitted and correctly set in accordance with the current Regulations.

Tooling is of correct type, securely fastened, sharp and direction of rotation is appropriate.

Correct spindle speed and feed is selected (for the cutter equipment).

Loose clothing is either removed or fastened and jewellery removed.

Suitable jigs and push sticks are available for use where appropriate.

The working area is clean and unobstructed.

Extraction equipment is switched on, properly adjusted and working efficiently.

Suitable protective equipment is available, e.g. goggles, ear defenders and dust mask.

WHEN SETTING, CLEANING AND MAINTAINING THIS MACHINE:

Ensure all moving parts of the machine are stationary before setting, cleaning or making any adjustments.

Report immediately, to a person in authority, any machine malfunction or operator hazard. Do not attempt to repair the machine unless competent to do so.

The electrical equipment must be installed and used in accordance with the instructions contained in this manual. Regular inspection and safety tests must be undertaken by a competent person. Ensure all power sources are isolated before any maintenance work commences.

If the operator is likely to be subjected to noise levels greater than specified in the Noise At Work Regulation 1989, then a Noise Test Record Sheet will be included in this manual.

NOISE TEST RECORD SHEET

This information is provided in accordance with The Health & Safety Executive Noise At Work Regulations 1989

MACHINE TYPE:
Model 352 Vertical Bandsaw

MOUNTING CONDITION:
Free Standing On Concrete Floor

BACKGROUND READING dB(A):
49

TEST	MATERIAL	CUTTER SPEED	MAX. dB(A)
1	Free Run	1220 M/Min	78
2	65x65 Soft Wood	1220 M/Min	91
3	140x45 Mahogany	1220 M/Min	88
4	.....	.....	.....
5	.....	.....	.....
6	.....	.....	.....

MAXIMUM dB(A) NOISE LEVEL READINGS ARE TAKEN
WITHIN 1 METRE OF THE MACHINE
& AT A HEIGHT OF 1.5 METRES.

INSTALLATION.

To transport machine to site, built-in rollers and a handgrip are provided for easy handling, support the machine with free hand as shown in Fig.1.
WARNING : DO NOT MOVE MACHINE BY MEANS OF THE TABLE AS THIS MAY CAUSE DAMAGE TO THE CRADLE ASSEMBLY.
Adequate working space is essential for ease of use. Avoid siting the machine in a cramped corner where operation may prove difficult or near a gangway where passing people could present a hazard to the operator. The whole working area should be well illuminated and the floor around the machine provided with a level and non-slip surface. A bench or table space, near the machine to accommodate work in progress will prove a real asset. 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 cabinet base is provided with two bolting down holes to accept 8 mm diameter bolts (not supplied). Remove the anti-rust protective coating where applied, and in particular from the working elements of the machine.

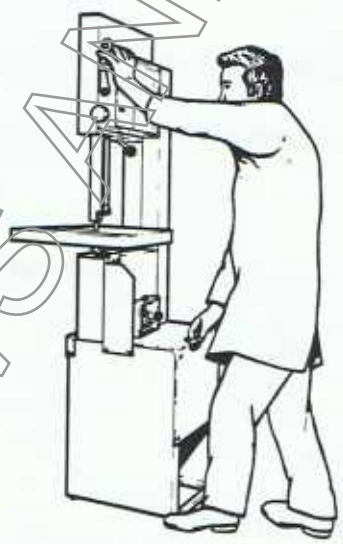


Fig. 1.

CONNECTION TO THE ELECTRICITY SUPPLY.

IMPORTANT: Check that the supply voltage is suitable for operation of the machine. (Values of which are found on the machine rating plate mounted on the rear of machine).
Pass supply lead through the gland in the bottom of the control box mounted on rear of machine.
Refer to wiring and location diagram for your machine and connect as follows:-

THREE PHASE:
The machine will operate on 440-480 volt 3 phase 60Hz. supply.
Connect supply lead to terminals, L1, L2 and L3 on terminal block or lockable isolator, if fitted (optional extra). Connect the earth lead (yellow/green) to earth terminal (PE) and neutral to terminal (N) if required. Check motor rotation, saw blade must pass downward through the table. If necessary, interchange supply leads LI and L3 to reverse motor rotation.

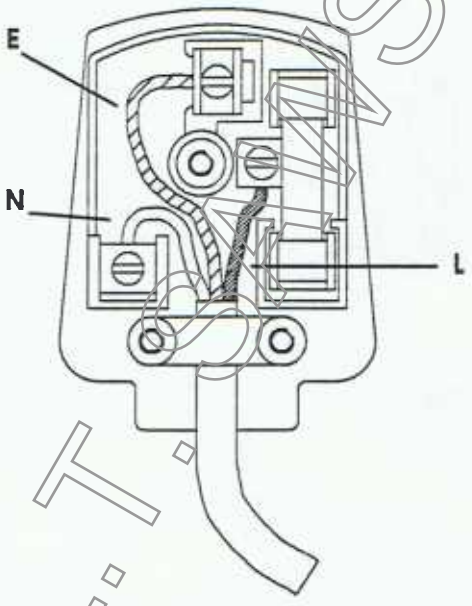
Recommended cable size: I.5mm square (16 AWG).
Fuse rating: 10amp.

SINGLE PHASE:
The machine will operate on 220-230 or 110-115 volt single phase 60Hz. supply.
Connect supply lead to terminals L1 and N on terminal block or lockable isolator if fitted (optional extra). Connect the earth lead (yellow/green) to earth terminal (PE) and neutral to terminal (N) if required. Temporary connection (ie. for demonstrations) may be made to a domestic socket ring main circuit by wiring the supply leads to a fused plug as shown in Fig.2, taking care to protect the cable from mechanical damage.
Link live supply lead to.terminal LI, and neutral supply lead to terminal N. Connect the earth lead (yellow/green) to earth terminal (PE).

Recommended cable size: I.5mm square (16 AWG).
Fuse rating: 13-I5amp.

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

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

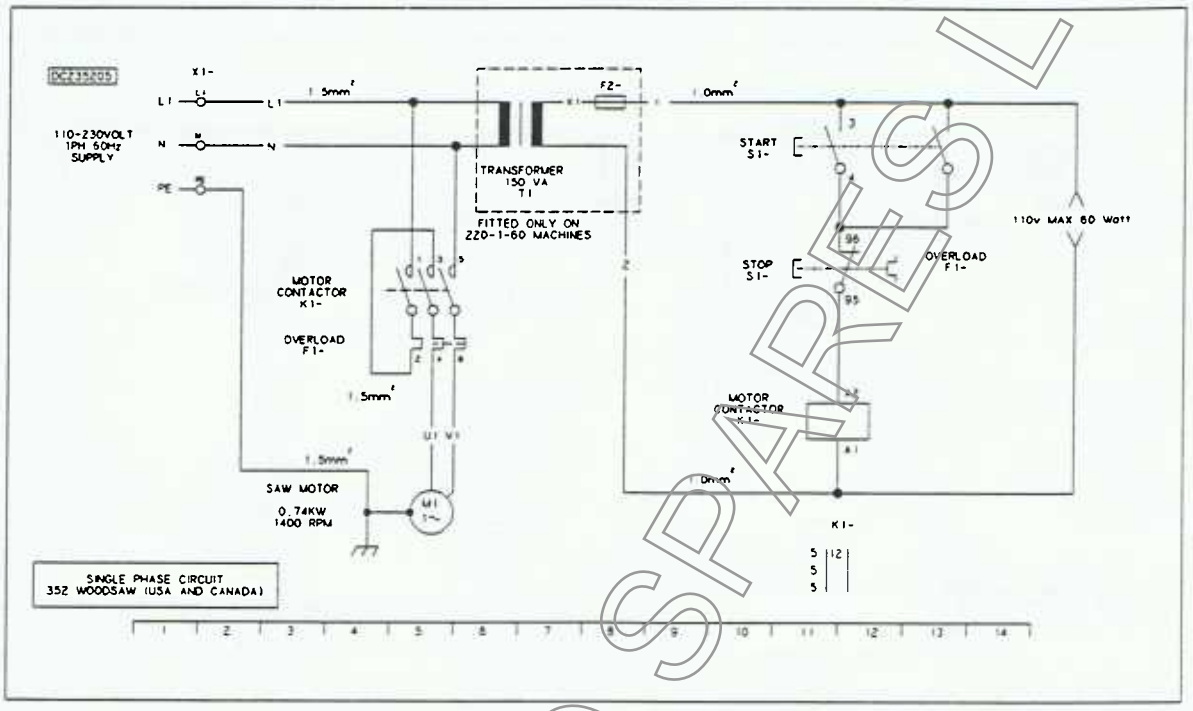


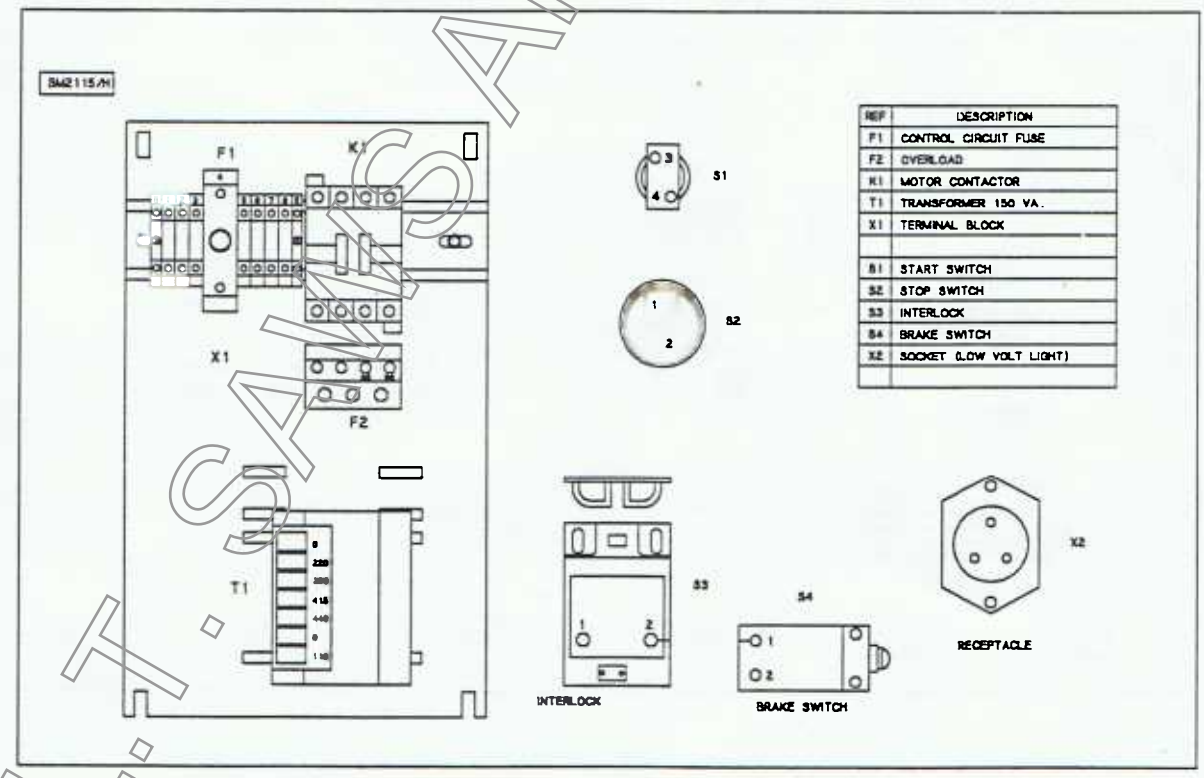
COLOUR CODE:

Live	(L) - Brown
Neutral	(N) - Blue
Earth	(E) - Yellow/Green

Fig. 2.

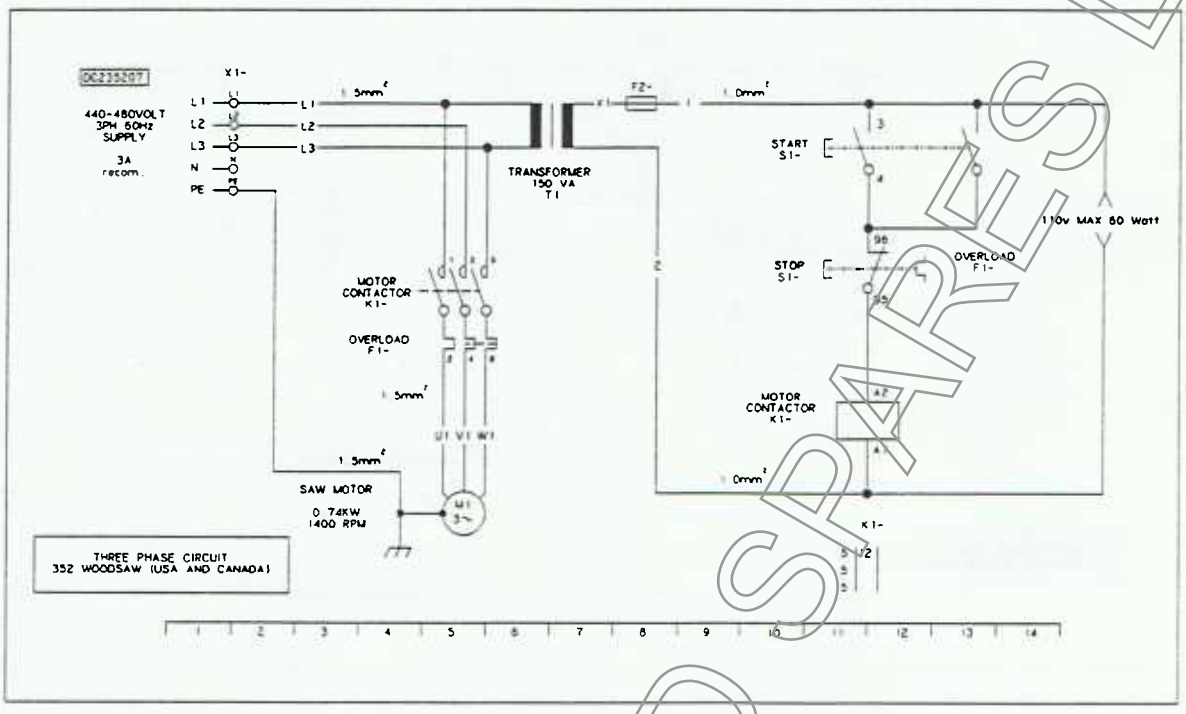
WIRING & LOCATION DIAGRAMS FOR 352 1 PHASE MACHINES

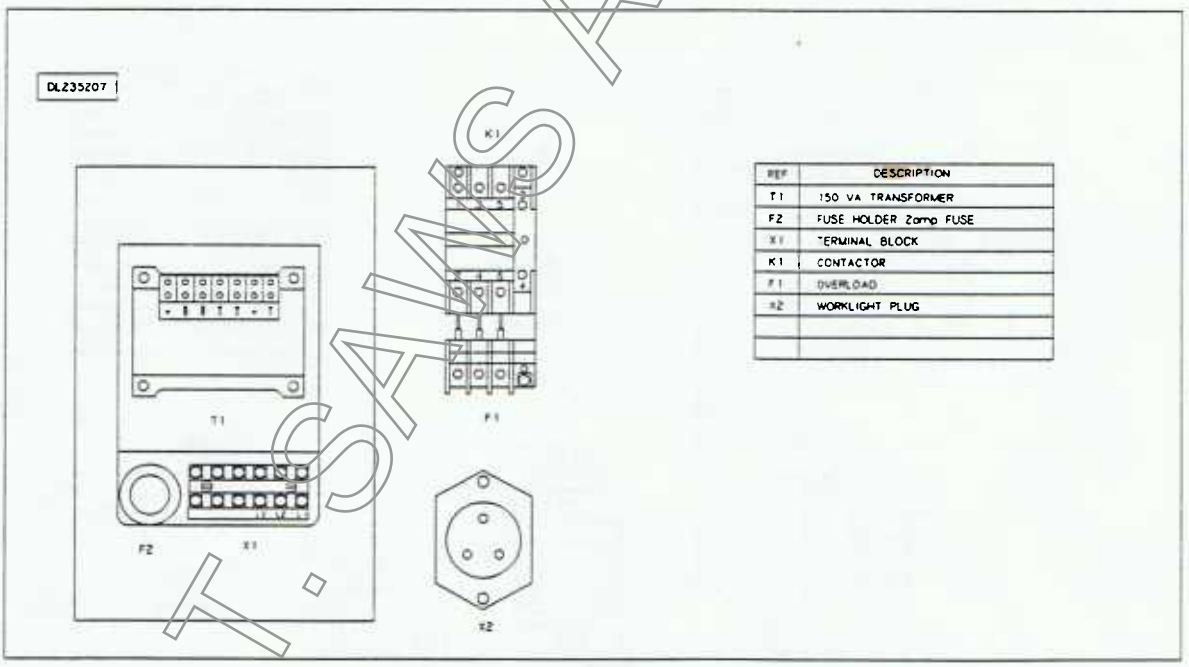




REF	DESCRIPTION
F1	CONTROL CIRCUIT FUSE
F2	OVERLOAD
K1	MOTOR CONTACTOR
T1	TRANSFORMER 150 VA.
X1	TERMINAL BLOCK
S1	START SWITCH
S2	STOP SWITCH
S3	INTERLOCK
S4	BRAKE SWITCH
X2	SOCKET (LOW VOLT LIGHT)

WIRING & LOCATION DIAGRAMS FOR 352 3PHASE MACHINES





REF	DESCRIPTION
T1	150 VA TRANSFORMER
F2	FUSE HOLDER 2amp FUSE
X1	TERMINAL BLOCK
K1	CONTACTOR
F1	OVERLOAD
X2	WORKLIGHT PLUG

MACHINE CONTROLS.

BLADE SPEED:
Select blade speed to suit job, see chart on page 11, or Instruction Plate at rear of machine. Access to drive-belt is obtained by opening the bandwheel door. At rear of machine, turn drive-belt tension control handle to raise motor and release tension on drive-belt. The twin-groove pulley is located behind the lower bandwheel, shift the drive-belt into the correct grooves to obtain required speed :--

HIGH SPEED
(Small dia. grooves) - 1098 m/min, 3600 ft/min.

LOW SPEED
(Large dia. grooves) - 660 m/min, 2160 ft/min.

With drive-belt placed in grooves, re-tension drive-belt and close bandwheel door.

TABLE:
The table can be tilted to any angle up to45 degrees. To tilt table slacken off trunnion nut using spanner provided (see Fig. 3). Tilt table and align pointer with protractor scale for required angle and tighten trunnion nut. The machine is fitted with a setting stud, make sure the table rests firmly against the stud when re-setting the table to zero.

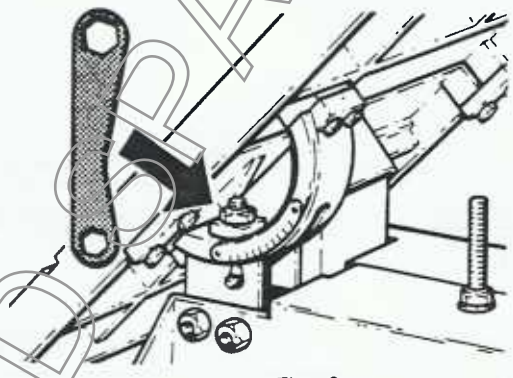


Fig. 3.

BLADE GUARDS :
The upper and lower blade guards are fully adjustable and must be kept in position when the machine is in use. The upper blade guard can be adjusted for height and should be set as close as possible to the workpiece. The lower blade guard can be set to give complete under table protection at all angles of table tilt (seeFig. 4).

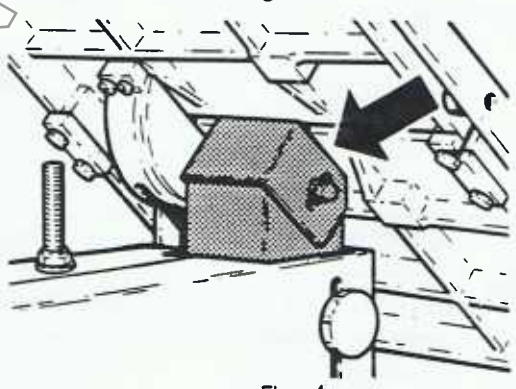
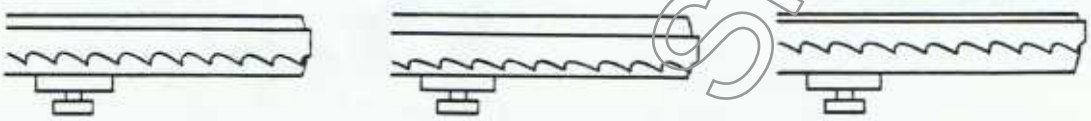


Fig. 4.

FOOT BRAKE AND DOOR INTERLOCK :
When depressed the foot brake immediately disconnects the motor and applies a mechanical brake to the lower bandwheel. The bandwheel door is fitted with an electrical interlock which automatically disconnects the motor when the door is opened. It may be found necessary to make adjustments to the foot brake linkage occasionally.

SETTING UP THE MACHINE/FITTING A NEW SAW BLADE.

Select a saw blade suitable for the work in hand, see Chart on page 11, or instruction plate at rear of machine. Open bandwheel door, remove upper blade guard and release table latch. Lower the top bandwheel by turning the blade tension control handle clockwise and remove saw blade.
Place selected saw blade over both bandwheels with the teeth facing forward and downward through the table. 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. Rotate the bandwheels by hand and at the same time operate the blade tracking control so that the saw blade runs approximately central on the bandwheels (see Fig. 5).



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

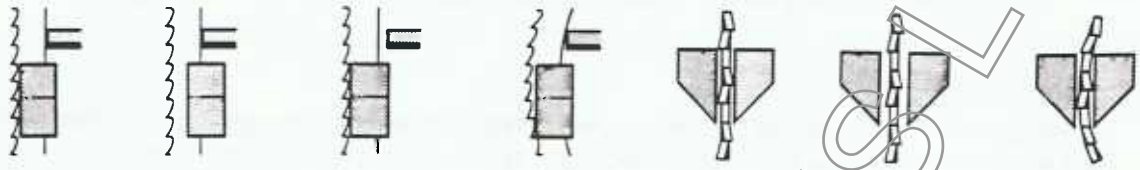
Fig. 5.

BLADE WIDTH	6mm, 1/4"	12mm, 1/2"	20mm, 3/4"
BLADE TYPE	TENSION GUIDE		
METAL CUTTING	LOW	MEDIUM	HIGH
WOOD CUTTING, SCALLOPED, KNIFE EDGE	LOW	LOW-MEDIUM	MEDIUM-HIGH

When the saw blade is tracking in a satisfactory manner, apply the appropriate blade tension, see Chart above, or Instruction Plate at rear of machine for correct tension required. Turn the blade tension control handle until the appropriate figure appears in the 'window'.

EXAMPLE\: 12 mm (1/2'') wide Metal Cutting Blade = MED

The tension required varies between types of saw blades and also blade widths. The blade length, provided that it is acceptable to the machine, does not affect the indicated tension. The indicator will give a fair guide as to the correct tension required, but it may be necessary to vary this slightly according to circumstances. 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. 6.



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. 6.

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 rod 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 rod.
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 blade guard, secure table latch and close door. The machine is now ready to operate.

MACHINE ADJUSTMENTS.

FOOT BRAKE:
A microswitch is mounted on a plate above the brake arm. When the brake is depressed, the microswitch operates and cuts the power supply to the motor. If the motor does not stop under operation of the brake pedal, then adjustments may be carried out as follows:-

1) FOOT BRAKE NOT OPERATING.
Remove saw blade and the lower bandwheel. Remove brake shoe and examine the brake lining for wear. Replace shoe if required. Re-position the brake shoe to seat firmly on the brake drum (inner face of drive-belt pulley) when the brakepedal is depressed half way down.
NOTE: The braking pressure applied is determined by the amount of compression of the larger spring which transfers the brake pedal action to the brake shoe.
The amount of compression can be varied by adjusting the threaded collar on top of the spring, but the spring must never be allowed to close up solid when the brake pedal is fully depressed. The collar beneath the spring is factory set and should not be adjusted.

2) MOTOR DOES NOT CUT OUT WHEN FOOT BRAKE PEDAL IS DEPRESSED.
Carry out Check No.1.
Open the bandwheel door and slacken off the 2 cap head screws retaining the microswitch mounting plate. The microswitch should be positioned so that it operates before the brake pad comes into contact with the inner face of the lower bandwheel pulley. (The microswitch can be heard operating). Tighten the cap head screws

3) MACHINE WILL NOT START.
Check electricity supply. 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 restarted.

BLADE GUIDES:
It is important that the blade guides are set correctly to enable the operator to obtain the best results from the saw blade. Incorrectly set blade guides can shorten the life of a saw blade by dulling the teeth, damaging the set of the teeth, and may cause the blade to twist or break. For Instructions on adjusting or setting up the blade guides, see Setting Up The Machine/Fitting a New Sawblade on pages 10-11.

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 if necessary.

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

4) Check condition of brake shoe and replace when necessary (see Machine Adjustments).

5) Check that the foot brake linkage operates correctly, and adjust as necessary (see Machine Adjustments).

6) Clean and lubricate working parts as required.

The bandwheels are mounted on sealed-for-life bearings and do not require further lubrication.

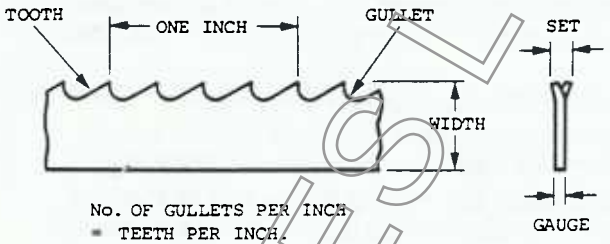
SAW & SPEED SELECTION CHART

		MATERIAL THICKNESS			
		UNDER 6mm, 1/4"	6mm, 1/4" TO 12mm, 1/2"	12mm, 1/2" TO 25mm, 1"	OVER 25mm, 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	10R	6H		
	LOW			10R	6H
PAPER - TISSUE	HIGH	SC	SC	SC	
PAPER MACHE	HIGH	KN	10R		
PERSPEX	HIGH	14R	10R		
	LOW			6R	3S
PLYWOOD	HIGH	10R	8R	6S	3S
RUBBER	LOW	10R	8R	6R	
STRAWBOARD	HIGH	14R	10R		
	LOW			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.

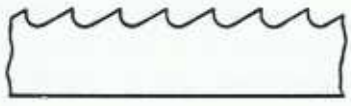
An understanding of the design and application of the various types of saw blades obtainable is essential if the bandsawing technique is to be fully exploited. Selection of the most suitable saw blade for the job is very important as a poor choice can lead to much wasted time and money.



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.

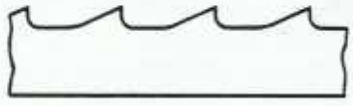
TOOTH FORM refers to the profile of the tooth. The two most popular styles are regular tooth and skip tooth as shown in the illustrations.

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.

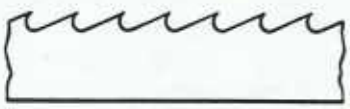


REGULAR TOOTH

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



HOOK TOOTH

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.

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

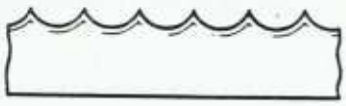
WAVY SET saw blades have the teeth alternately set to the left and right in groups or waves. With this formation of tooth set, relativeiy few teeth are cutting at the side of the kerf and therefore there is some tendency for the saw blade to jam when sawing abrasive materials.

WAVY SET

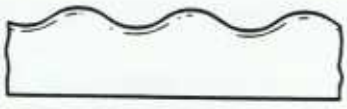
SAW GAUGE is the actual thickness of the body of the saw blade. Some manufacturers produce special gauge saw blades for specific purposes, but generally saw blades up to and including 4" wide are .025" thick, 5/8'' & 3/4'' wide are .032" thick.

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.

KNIFE EDGE BAND



SCALLOPED EDGE BAND



WAVY EDGE BAND

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 (and the Instruction Plate at the rear of the machine) offers a basic guide on this point.

BLADE WIDTH SELECTION CHART							
BladeWidth		3mm,1/8"	6mm,1/4"	10mm,3/8"	12mm,1/2"	15mm,5/8"	20mm,3/4"
	mm	8	25	38	62	100	136
	ins	5/16	1	1 1/2	2 1/2	4	5 3/8

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.

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 soild plastic materials although some have an abrasive nature which tends to shorten the effective life of the saw blade.

Heat generated by sawing friction causes 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.

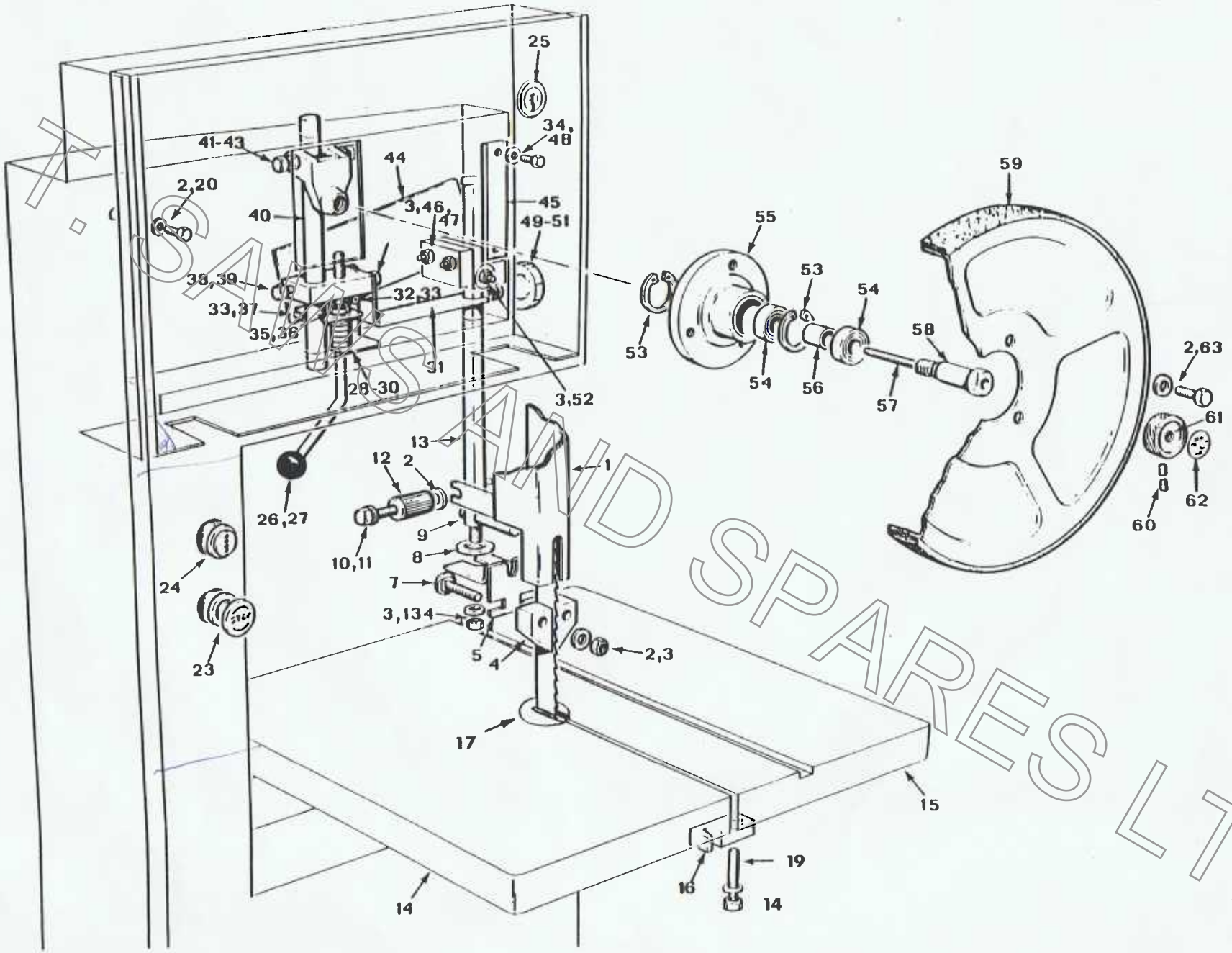
BLADE DEVELOPING TWIST :

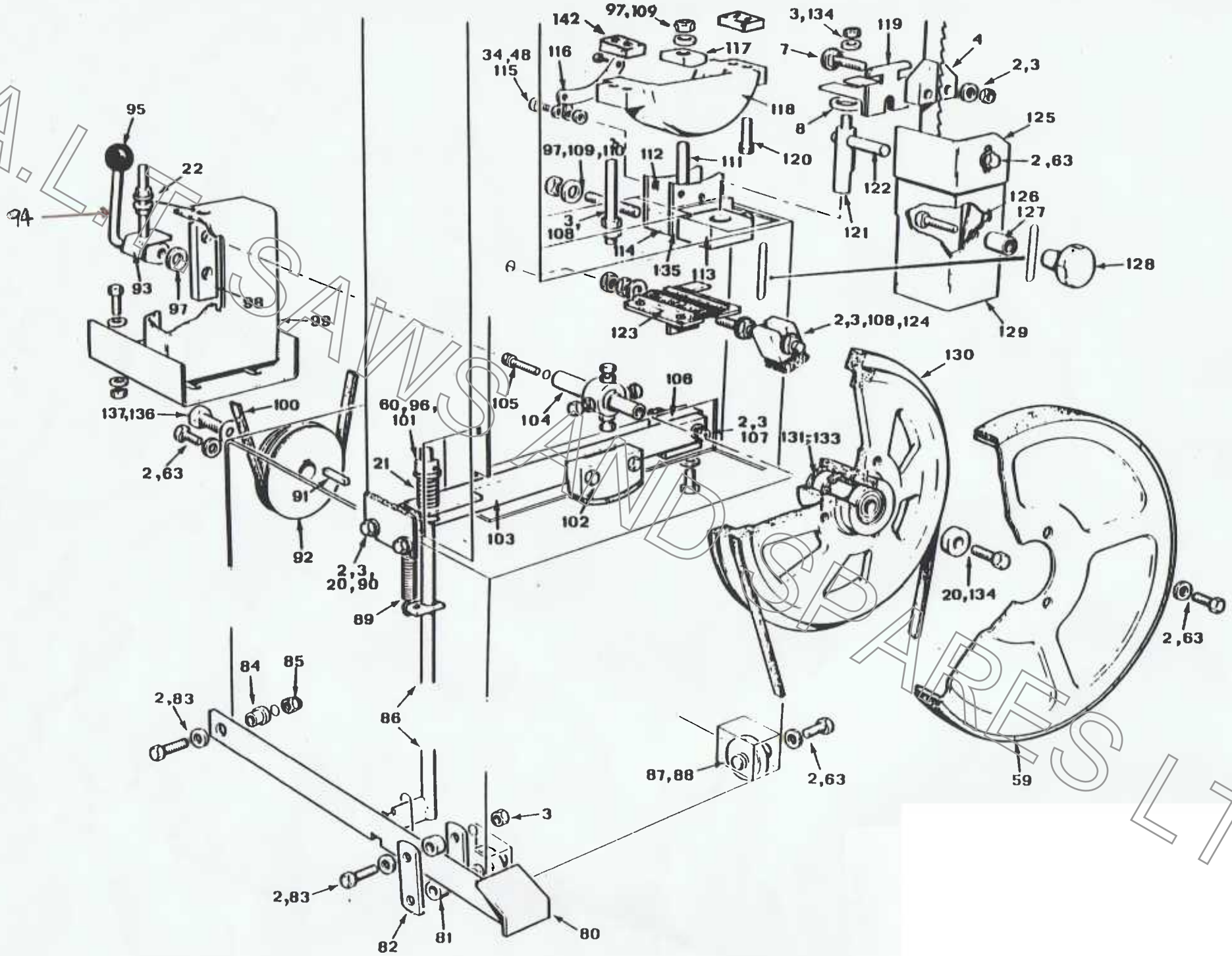
Excessive feed pressure.
Guide inserts snagging blade.
Blade too wide for radius of cut.
Excessive blade tension.
Blade not tracking correctly.
Loss of set to one side of saw teeth.

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.

ITEM	PART No.	DESCRIPTION	No. OFF
1	SM586	Blade Guard	1
2	BO5918	Std. Washer	40
3	BO5715	Hex. Nut	24
4	4891	Blade Guide	4
5	SM1434	Guide Bracket (Upper)	1
7	BO5621	Carriage Bolt	4
8	BO5923	Washer	2
9	SM585/B	Thrust Rod (Upper)	1
10	BO5566	Hex. Hd. Screw	2
11	BO5917	Washer	1
12	5496	Blade Guard Handle	1
13	4889/A	Top Guide Post	1
14	BO5919	Std.Washer	2
15	10003	Table	1
16	2828	Table Latch	1
17	6756	Table insert	1
18	BO5562	Hex. Hd. Screw	5
19	BO5085	Cap screw	2
20	BO5561	Hex. Hd. Screw	5
21	BO2207	Compression Spring	1
22	BO5716	Hex. Nut	2
23	BO1187	Stop Button	1
24	BO1172	Start Button	1
25	BO2562	Key Lock	1
26	BO2530	Ball Knob	1
27	4902/A	Tension Screw	1
28	4904	Pivot Plate	1
29	BO2241	Disc Spring	22
30	4907	Plate	1
31	4903	Angle Bracket	1
32	4905	Pivot Bush	1
33	BO5871	Hammer Drive Screw	4
34	BO5546	Hex. Hd. Screw	5
35	BO5756	Slotted Nut M10 (L.H.)	1
36	BO5436	Mill Pin	1
37	4906	Pivot Pin	1
38	BO5564	Hex. Hd. Screw	3
39	4899	Tension Block	1
40	4900	Tension Rod	1
41	5681	Tilt Bracket	1
42	5682	Pivot Screw	2
43	BO5742	Hex. Locknut	2
44	4918	Tension Indicator Plate	1
45	4861	Clamp Plate	1
46	4859	Guide Block	1
47	5313	Mod Soc. Hd. Cap Screw	2
48	BO5914	Std. Washer M5	4
49	4988	Special Nut	4
50	BO2208	Compression Spring	1
51	BO2557	Clamping Handle	1
52	BO2557	Soc. Set Screw	2
53	BO6034	Circlip Internal	2
54	BO2016	Ball Bearing	2





ITEM	PART No.	DESCRIPTION	No. OFF
55	5115	Bandwheel Hub	1
56	5116	Spacer	1
57	5117	Jacking Screw	1
58	5114	Spindle	1
59	2473	Bandwheel	2
60	BO5186	Soc. Set Screw	7
61	5118	Control Knob	1
62	2466	Instruction Label	1
63	BO5560	Hex. Hd. Screw	17
80	SM844	Foot Brake Lever	1
81	4876	Spacer	2
82	4997	Brake Guide Plate	2
83	BO5563	Hex. Hd. Screw	7
84	4984	Spacing Washer	1
85	BO5735	Self Locking	1
86	SM840	Brake Rod	1
87	4868	Axle Pin	2
88	4869	Wheel	2
89	BO2194	Tension Spring	1
90	BO5935	Shakeproof Washer	4
91	1149	Key	1
92	8670	Motor Pulley	1
93	SM838/A	Platform Stud	1
94	SM836	Clampling Handle	1
95	BO2529	Ball Knob	1
96	BO5920	Std. Washer	3
97	BO5921	Std. Washer	4
98	4965	Clamp	1
99	SM584	Motor Platform	1
100	BO2182	Poly V Belt	1
101	9436	Locking Collar	2
102	SM843/A	Brake Shoe	1
103	SM841	Brake Lever	1
104	4896	Lower Bandwheel Spindle	1
105	BO5073	Soc. Hd. Cap Screw	1
106	4870	Pivot Block	1
107	BO5078	Soc. Hd. Cap Screw	1
108	5717	Stud	2
109	BO5715	Hex. Nut	3
110	BO5842	Stud	2
111	BO5841	Stud	1
112	4884	Tilt Plate	2
113	4890	Lower Guide Holder	1
114	4885	Spacer	1
115	2812	Pointer	1
116	4921	Protractor Plate	1
117	4911	Table Clamp	1
118	4838	Table Bracket	1
119	SM829/B	Guide Bracket (Lower)	1
120	BO5076	Soc. Hd. Cap Screw	4
121	4888/B	Lower Guide Post	1
122	SM585/B	Thrust Rod (Lower)	1

OPTIONAL EXTRAS & ACCESSORIES

240		"Cyclair" Extractor Unit - 1 Phase
241		"Cyclair" Extractor Unit - 3 Phase
242	SM1040	Extraction Collection Chute (rubber connecting sleeve and elbow not shown), enables Extractor Unit to be coupled directly to machine (see overleaf).
243		Model BSO.25 Welder & Grinder Unit, for joining blades up to 1" wide from bulk coil stocks. Complete with motorised grinder, cropper and annealing controls.