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

This Bandsaw 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®

S1 & S5 series

(SINGLE & FIVE SPEED)

BANDSAWING MACHINES

HANDBOOK

4E

QUALITY BANDSAW BLADES

TO SUIT THE
S SERIES MODELS

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A.L.T. SAWS & SPARES LTD

Unit 15, Pier Road Industrial Estate

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SPECIFICATION :

Model - S1 Series	-	14S1 : 13½" Throat, 2 Wheel, Single Speed Machine. 20S1 : 20" Throat, 3 Wheel, Single Speed Machine. 18S1 : 18" Throat, 3 Wheel, Single Speed Machine. 24S1 : 24" Throat, 3 Wheel, Single Speed Machine.
Model - S5 Series	-	14S5 : 13½" Throat, 2 Wheel, Five Speed Machine. 20S5 : 20" Throat, 3 Wheel, Five Speed Machine. 18S5 : 18" Throat, 3 Wheel, Five Speed Machine. 24S5 : 24" Throat, 3 Wheel, Five Speed Machine.
Electric Supply	-	220/240 Volt 3 Phase 50 Hz. 380/440 Volt 3 Phase 50 Hz. 220/240 Volt 1 Phase 50 Hz.
Max. Distributed Static Table Load	-	36 kg., 80 lbs. (All Models)
Gross Weights	-	14S : 318 kg., 700 lbs. 20S : 363 kg., 800 lbs. 18S : 272 kg., 600 lbs. 24S : 318 kg., 700 lbs.

FOR BEST RESULTS USE STARTRITE 'SUPAFLEX' BLADES.

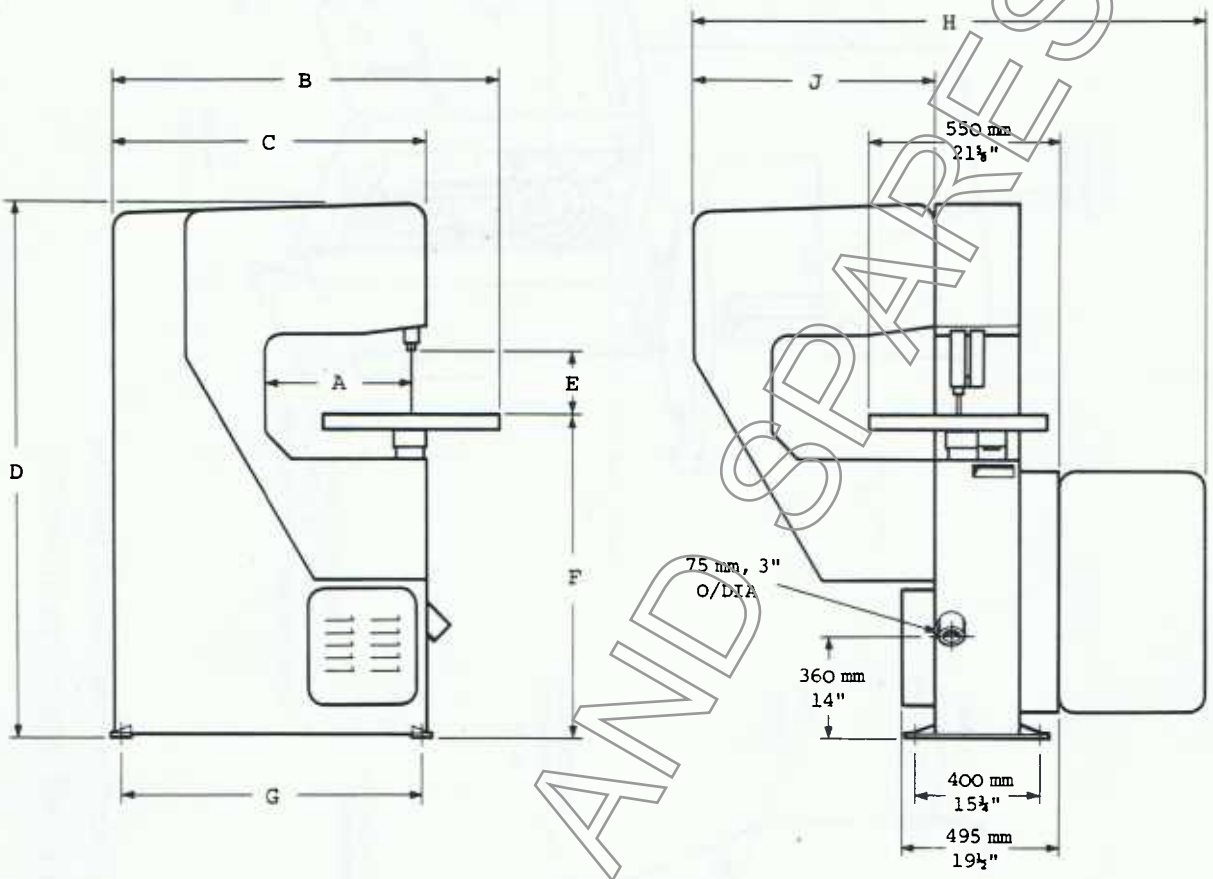
WHEN ORDERING PARTS, PLEASE STATE :-

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.

Startrite Machine Tool Co. Ltd., Waterside Works, Gads Hill,
Gillingham, Kent, ME7 2SF, England.

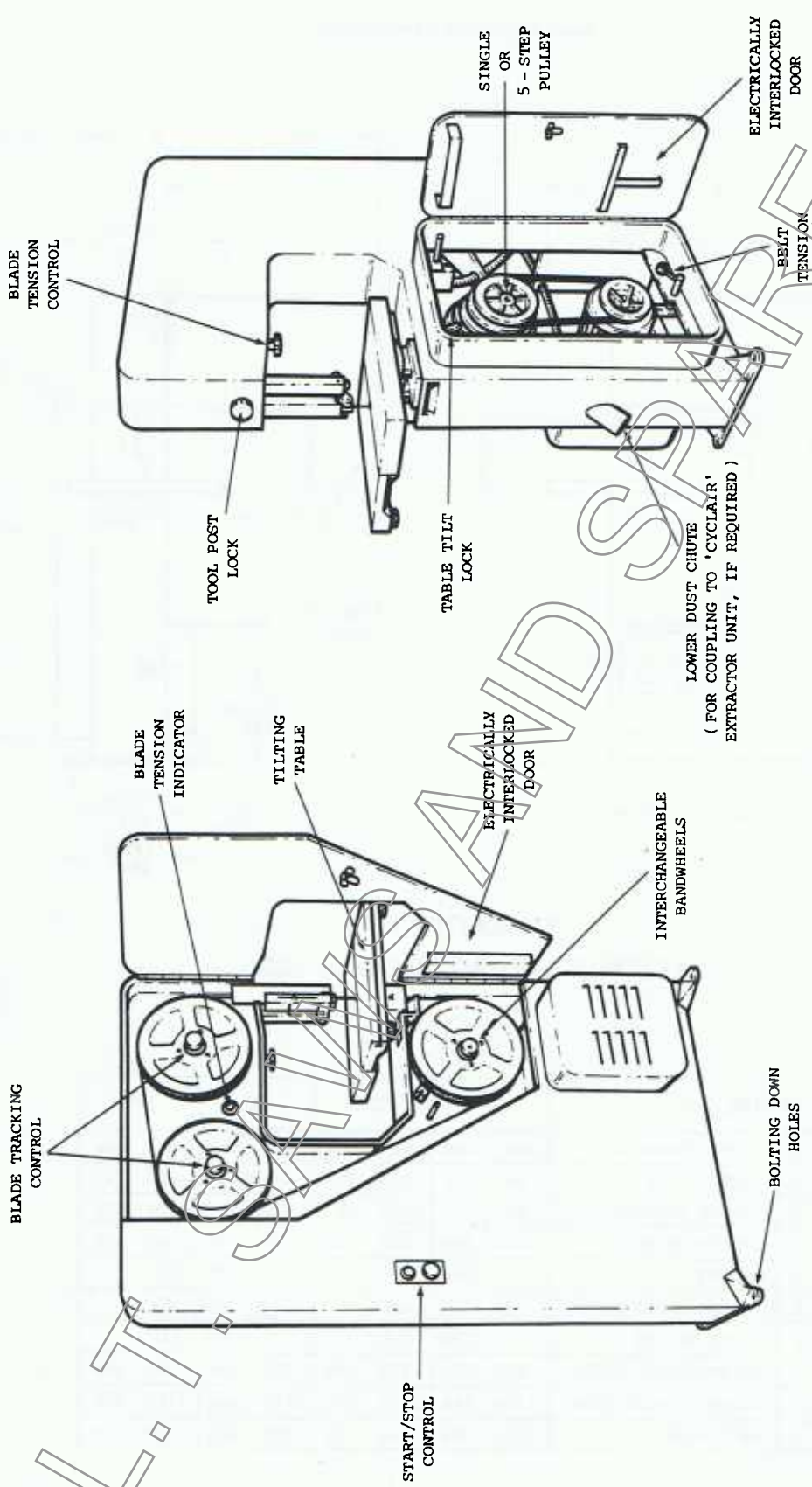
ALL DIMENSIONS APPROXIMATE.



FOUNDATION PLAN

(DETAILS VARY ACCORDING TO MODEL)

MACHINE TYPE		14"		20"		18"		24"	
PRINCIPAL DIMENSIONS		mm	ins	mm	ins	mm	ins	mm	ins
A	THROAT SIZE	345	13½	510	20	455	18	610	24
B	LENGTH OVERALL	815	32	1095	43	970	38	1200	47½
C	LENGTH OF BODY	615	24¼	895	35¼	770	30⅜	1000	39⅜
D	HEIGHT	1830	72			1745	68¾		
E	HEIGHT UNDER GUIDES	275	10¾			200	7⅞		
F	TABLE HEIGHT	1060	41¾			1075	42⅜		
G	BOLTING DOWN HOLES	595	23½	875	34½	750	29½	980	38½
H	WIDTH - DOORS OPEN	1390	54¾	1690	66½	1545	60⅞	1765	69½
J	MAIN DOOR	525	20⅝	820	32¼	680	26⅜	900	35½



GENERAL LAYOUT OF BANDSAWING MACHINE.
(DETAILS 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.

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.

Dust Extraction Equipment (Optional Extra) should be used, particularly when some hardwoods are being sawn, to reduce pollution of the atmosphere. Some materials, such as asbestos, give off toxic fumes and dust when machined, and in such cases it is necessary to seek expert advice as to the method of dust extraction.

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 in Fig.1.

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.

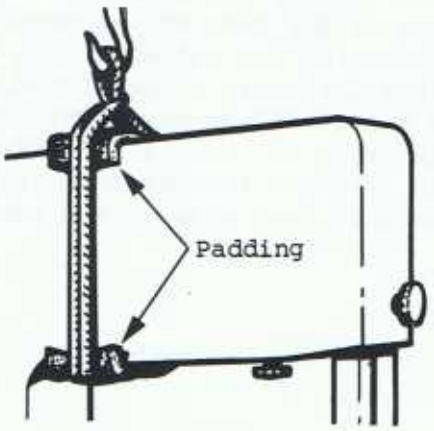


Fig.1.

SECTION 4

INSTALLATION (CONTINUED).

The base of the machine is provided with four fixing holes to accept $\frac{3}{8}$" dia. anchor bolts (not supplied) 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.

CONNECTION TO THE ELECTRICITY SUPPLY.

Before connecting to the electricity supply, see Section on Electrical System for full instructions.

SETTING UP THE MACHINE.

For full instructions on how to set up the machine for correct use, see Section on Setting Up / Blade Guides.

MACHINE CONTROLS.

5 SPEED MACHINES :

Operation of the Vee-belt tension control releases the tension on the Vee-belt, see Fig.2, which enables a higher or lower speed to be selected.
Blade speed variation is effected by means of a five step pulley. Select speed change while motor is stopped.

FIXED TABLES :

The table is secured in position by a single bolt passing through the cradle with the tilt locking nut accessible through the door at the rear of the machine, see Fig.2. Slackening the nut about one half turn will allow the table to be tilted. The table can be tilted 45° to the right. The table will also tilt 15° to the left if the zero stop pin is first removed from its position at the left hand side of the table mounting.

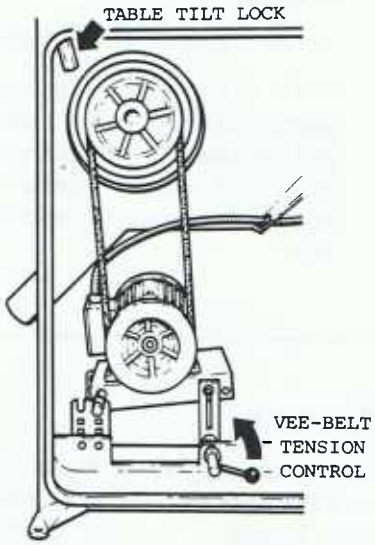


Fig.2.

MAINTENANCE.

WEEKLY MAINTENANCE :

Remove embedded chips from bandwheel tyres.
Clean upper and lower blade guide assemblies and check for wear.

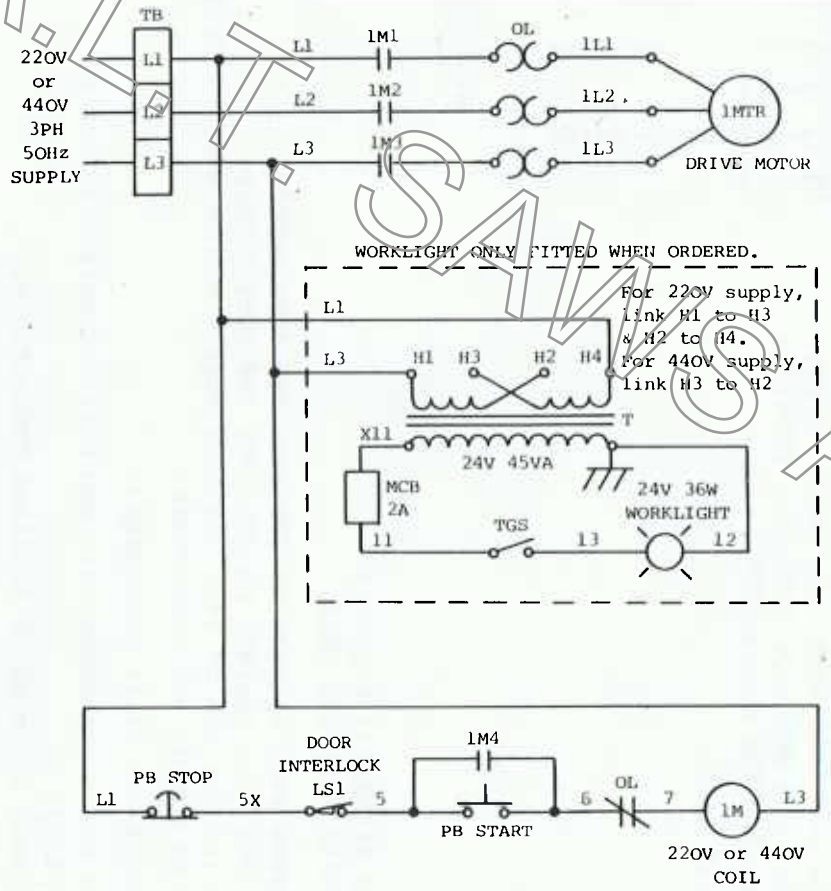
MONTHLY MAINTENANCE :

Check condition and tension of vee-belts.

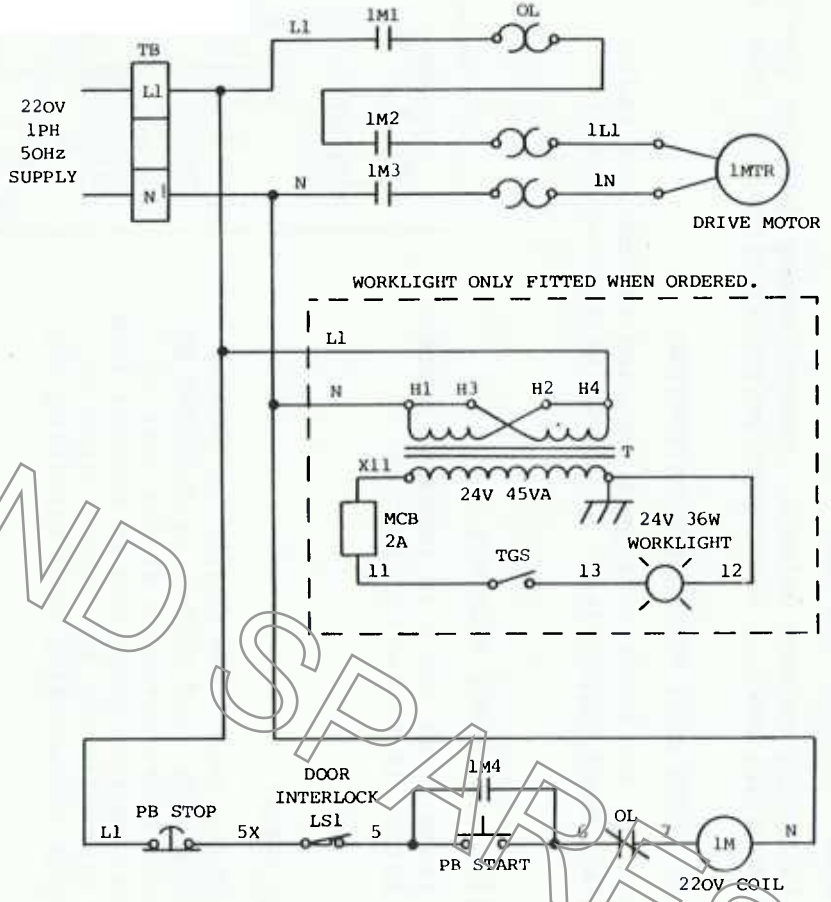
GENERAL :

Otherwise than above, clean and lubricate working parts as required.
The bandwheels have sealed-for-life bearings which do not require further lubrication.

APPROVED LUBRICANTS.	
GENERAL LUBRICATION	ESSO Esstic 50 Oil GULF Service 51 Oil MOBIL Mobilgear 629 Oil TEXACO Ursa P20 Oil
MOTOR BEARINGS	ESSO Beacon 3 Grease GULF Gulfcrown No.3 Grease MOBIL Mobilplex 48 Grease TEXACO Regal Starfak Premium 3 Grease



CIRCUIT DIAGRAM FOR 220V/440V
3 PHASE 50Hz MACHINES.



CIRCUIT DIAGRAM FOR 220V
1 PHASE 50Hz MACHINES.

SECTION 11

WIRING INSTRUCTIONS - 3 PHASE MACHINES.

If the machine is of the correct voltage, connect supply leads to terminals L1,L2 and L3 in terminal box (or disconnect switch if fitted) at rear of machine.

IMPORTANT : DO NOT SHIFT GEAR WHEN MOTOR IS RUNNING.

Check motor rotation, saw blade must pass downward through the table. If necessary interchange supply leads L1 and L3 to reverse rotation.

WIRING INSTRUCTIONS - 1 PHASE MACHINES.

Connect supply leads to L1 and N in terminal block (or disconnect switch if fitted) at rear of machine.

ELECTRIC CONTROL PANEL.

The electric control panel, see Fig.1, is located inside the machine body, and access is obtained by removing the panel cover situated at the rear of the machine. The complete panel may be removed from the machine by disconnecting the supply wires to the terminal block and securing nuts retaining the panel.

Item 1. Danfoss CI12 contactor with 220V or 440V coil. Provides Start/Stop control for main motor.

Item 2. Danfoss overload unit (see Chart on page 3 for part numbers and amperage ratings). Provides overload protection for main motor.

Item 3. Terminal block.

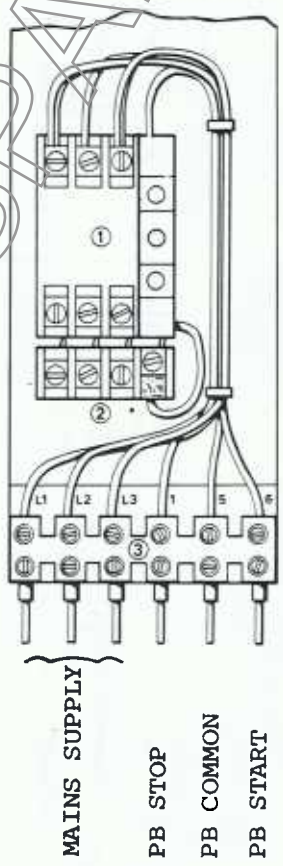


Fig.1.

CONVERSION FOR ALTERNATIVE SUPPLY VOLTAGE - 3 PHASE MACHINES ONLY.

220 Volt machines will operate on 220/240V 3PH 50Hz supply.
440 Volt machines will operate on 380/440V 3PH 50Hz supply.
Machines supplied for use on 440V 3PH 50Hz supply may be adapted to operate on 220V 3PH 50Hz supply and vice-versa.

To effect conversion, it is necessary :-

A. Replace the motor contactor coil and overload unit with one of suitable rating.
B. Change the main drive motor terminal connections.

Proceed as follows :-

A.

Remove control panel cover situated at rear of machine. Identify motor starter and overload unit, see Fig.2. Disconnect external wires to terminal block at bottom of control panel, and wires 1L1, 1L2 & 1L3 from overload unit. Remove nuts securing the panel to the machine body and withdraw the complete panel from the machine. Disconnect wires to motor contactor and remove from panel. Remove overload unit from contactor after slackening screws 2, 4 & 6 and disconnecting wire 7. Remove two screws holding contactor case together, depress solenoid by pressing down bar on top face of contactor and seperate halves of contactor casing.
Note:- Disposition of the various parts. Carefully release solenoid and remove the top portion. Replace the coil with one of suitable rating.

Assemble in reverse order, making sure spings in top halve of contactor case are located over pins on coil, when the contactor is assembled check action of solenoid by depressing top bar several times. Repeat this operation for the grinder motor contactor coil. Replace overload unit with one of a suitable rating according to the supply voltage (see Chart below). Set pointer at side of overload unit to indicate full load amps of motor.

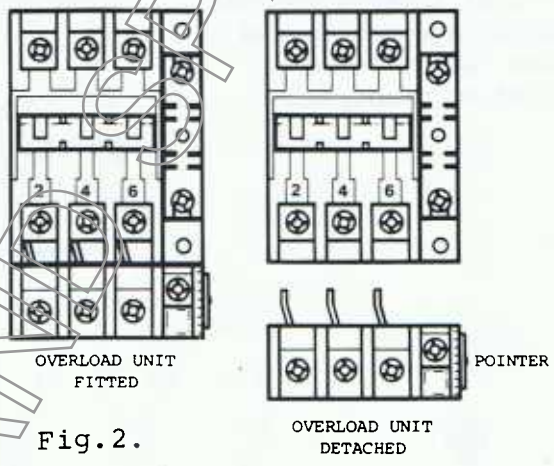
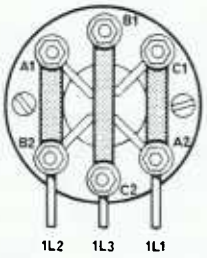


Fig.2.

B.

Remove cover of motor terminal box. Identify main drive motor terminal arrangements, see Figs.3, 4,5 & 6. Change the motor terminal linkage to suit appropriate voltage as shown, using correct method of connection.



3 LINKS FOR
220V 3PH SUPPLY.
2 LINKS FOR
440V 3PH SUPPLY.

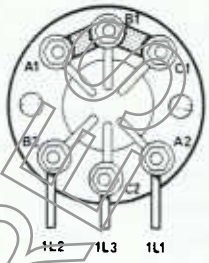
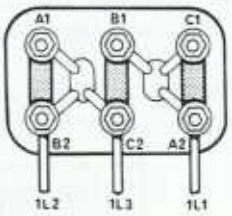


Fig.3.



3 LINKS FOR
220V 3PH SUPPLY.
2 LINKS FOR
440V 3PH SUPPLY.

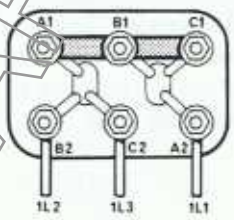
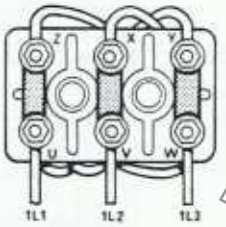


Fig.4.



3 LINKS FOR
220V 3PH SUPPLY.
2 LINKS FOR
440V 3PH SUPPLY.

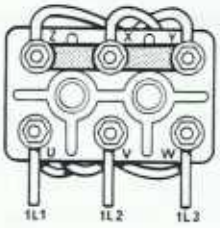
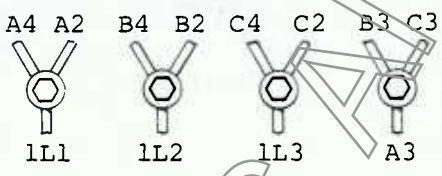
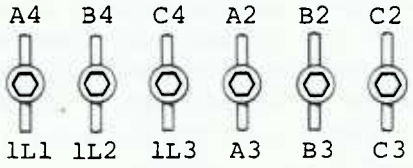


Fig.5.

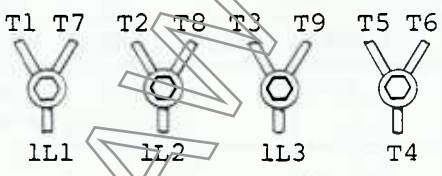
Connections to be made by nut, bolt and washers, and to be wrapped with adhesive p.v.c. insulating tape.



CONNECTIONS FOR
220V 3PH SUPPLY.



CONNECTIONS FOR
440V 3PH SUPPLY.



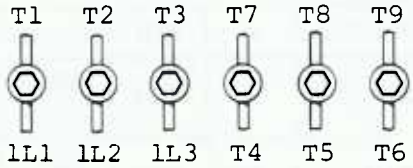


Fig.6.

SETTING UP THE MACHINE.

Select a saw blade suitable for the work in hand, see Section on Sawing Practice.

Lower the top bandwheel by turning the blade tension control knob and remove saw blade. Place selected saw blade over bandwheels with the teeth facing forward and downward through the table (see Fig.1), and apply sufficient blade tension to remove slack. It is important that both the top and bottom guide assemblies 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 to establish the path of the saw blade. Adjust the tracking control knob to position the saw blade approximately central on the bandwheels as shown in Fig.2.

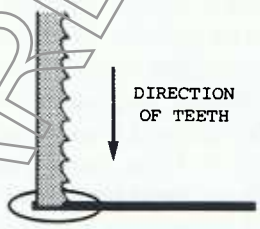
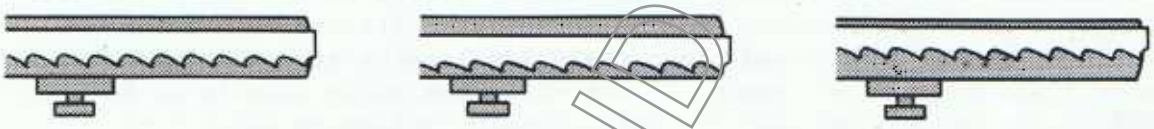


Fig.1.



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.2.

NOTE : 30" Throat Models have a tracking control fitted to both the top and third bandwheels. Care must be taken when setting these machines in order to avoid conflicting settings between the tracking controls. For this reason, the top bandwheel should be set in the mean position and the tracking controlled from the third bandwheel. After this procedure has been completed, a small final adjustment may be necessary to the top bandwheel control. This point does not arise of course when the machine is to be used on two wheel operation as the tracking procedure is carried out solely by the top bandwheel control.

When the saw blade tracks in a satisfactory manner, apply the appropriate blade tension as shown by the tension indicator, see Fig.3. The tension scale registers tension applied in terms of saw blade width, thus a reading of 13mm indicates that tension to suit a 13mm wide saw blade has been applied. The saw 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.

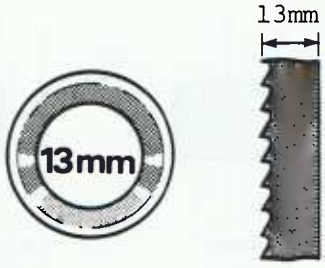


Fig.3.

SECTION 13

SOLID INSERT BLADE GUIDES.

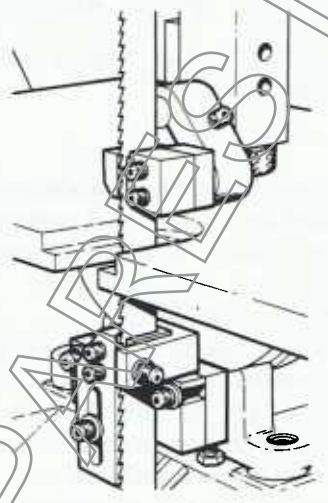


Fig.4.

These guides (fitted as standard on all machines) give the greatest possible support to the saw blade and are therefore most suitable for precision sawing. In most cases greater working life of the saw blade can be obtained than is possible with other types of guides. Solid insert guides (see Fig.4) as the name implies, have the guiding faces machined into a solid block, thereby eliminating the need for individual adjustment to separate controlling elements. The guide inserts are made in a range of sizes to suit blade widths (see Parts List on page 3). After initial setting each size of insert is automatically positioned when fitted into the guide holder.
Check each new saw blade before use for smoothness on sides and back edge at welded joint.
New guide inserts should be allowed to bed in by being subjected only to light feed pressure during the first few minutes of use.
An occasional small application of saw wax or tallow to the saw blade will generally improve performance and prolong working life of both saw blade and guide inserts. Remove and clean the guide inserts at each blade change, or more frequently if necessary. Do not allow the guide inserts to become seized in the holders so that the self aligning action is inhibited.

Initial setting of the guide holders is best accomplished by fitting a wide saw blade. Fit guide inserts to suit width of blade to be used. Slacken securing screws (Items 1 & 19) and position the insert locators to hold the guide inserts with minimum side clearance but free enough to pivot under finger pressure.
The correct size guide inserts should always be used as they offer maximum support to the saw blade (see Fig.5).
Position guide holders so that guide inserts support the saw blade without deflecting it from a straight line (see Fig.6).
After adjusting the guides, rotate bandwheels by hand to ensure that the saw blade runs free. The top guides should be set as close as possible to the workpiece to offer maximum support to the saw blade in its working condition. Incorrectly set guides can only result in poor quality work and short blade life.

Fig.5.

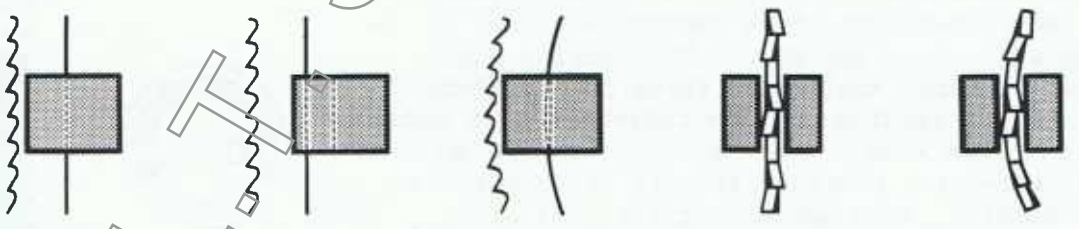
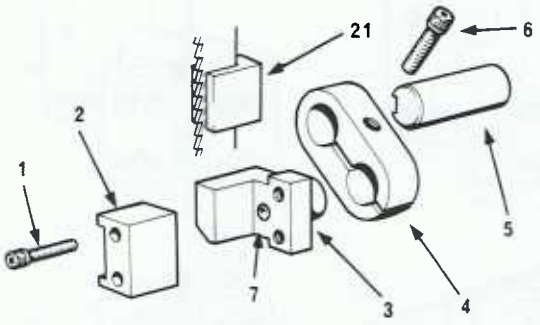
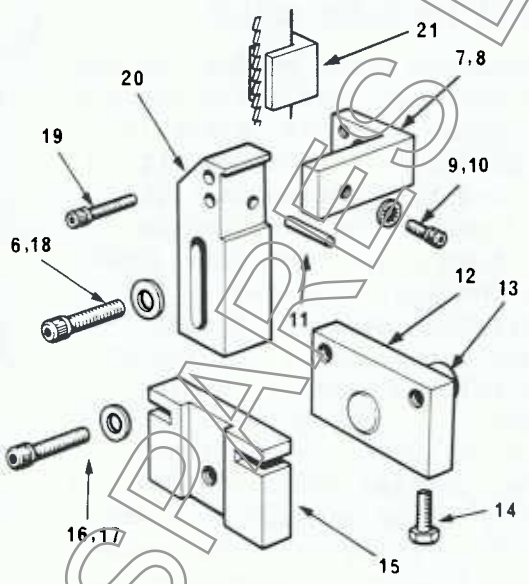


Fig.6.





SOLID INSERT BLADE GUIDES
- UPPER & LOWER

SOLID INSERT BLADE GUIDES (UPPER) - ASSEMBLY No.SP624

ITEM	PART NUMBER	DESCRIPTION	No.OFF
1		Soc. Hd. Cap Screw	2
2	4157	Insert Locator	1
3	4158	Stem	1
4	4156	Guide Arm	1
5	4154	Spigot	1
6		Soc. Hd. Cap Screw	1
7		Drive Screw	1

SOLID INSERT BLADE GUIDES (LOWER) - ASSEMBLY No.SP712

6		Soc. Hd. Cap Screw	1
7		Drive Screw	1
8	4326	Insert Locator	1
9		Shakeproof Washer	1
10		Soc. Hd. Cap Screw	1
11		Mills Pin	1
12	4324	Back Plate	1
13	4327	Spigot	1
14		Hex. Hd. Screw	2
15	4325	Stem Holder	1
16		Std. Washer	2
17		Soc. Hd. Cap Screw	2
18		Std. Washer	1
19		Soc. Hd. Cap Screw	2
20	4323	Stem	1

SOLID GUIDE INSERTS

21	4146	Guide Inserts for 1/8" - 3 mm Blade Width	2
	4147	" " " 3/16" - 5 mm " "	2
	4148	" " " 1/4" - 6 mm " "	2
	4149	" " " 3/8" - 10mm " "	2
	4150	" " " 1/2" - 13mm " "	2
	4151	" " " 5/8" - 16mm " "	2

SECTION 13

COMBINATION BLADE GUIDES.

Combination blade guides, as the name implies, have two different functions. They can be set in the normal position (see Fig.7) and used for continuous high speed sawing, or they can be set at an angle (see Fig.8) and used for angled sawing. Combination blade guides will accept either guide inserts or side rollers (see Parts List on page 5). The guides, which are available as an optional extra, utilise standard location points on the machine, and are therefore fully interchangeable with all other blade guides and attachments on all models.

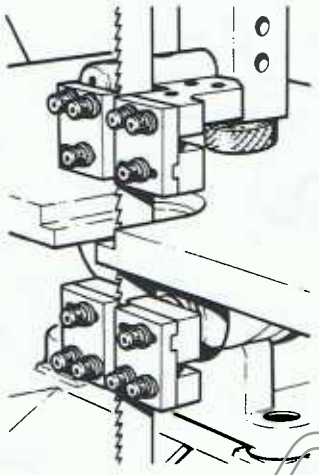


Fig.7.

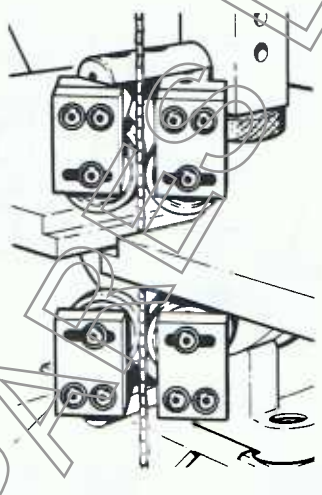


Fig.8.

Assemble the blade guides to the machine using the standard location points. Fit guide inserts (Item 39) or side rollers (Item 38) to suit width of blade to be used (see Parts List on page 5). Slacken securing screws (Item 36) and position the guide inserts so that they support the saw blade without deflecting it from a straight line. The arm (Item 30) may be set an angle to the guide body (Item 32). By this means the saw blade is twisted at an angle of 40° to the axis of the table, so as to overcome the limited capacity of the throat size when sawing across a long narrow workpiece, see Figs.9 & 10. When the guides are used in the angled position, side rollers must be fitted and the blade speed should not exceed 300 ft/min. (91 meters /min.).

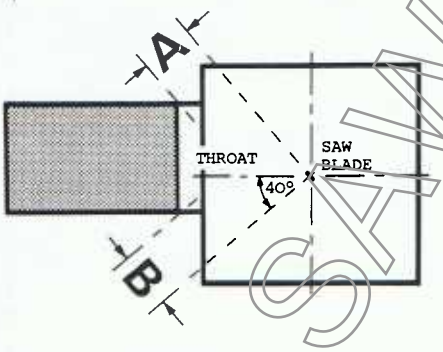


Fig.9.

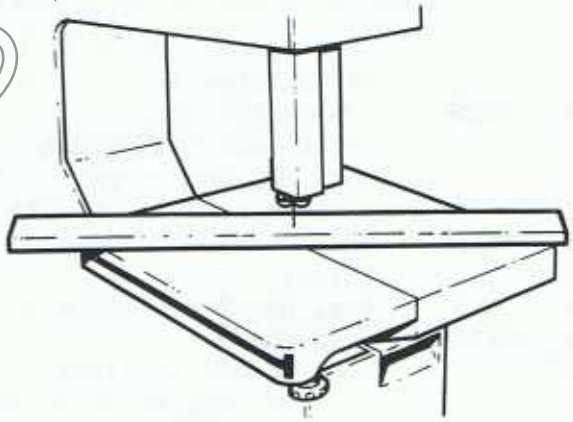
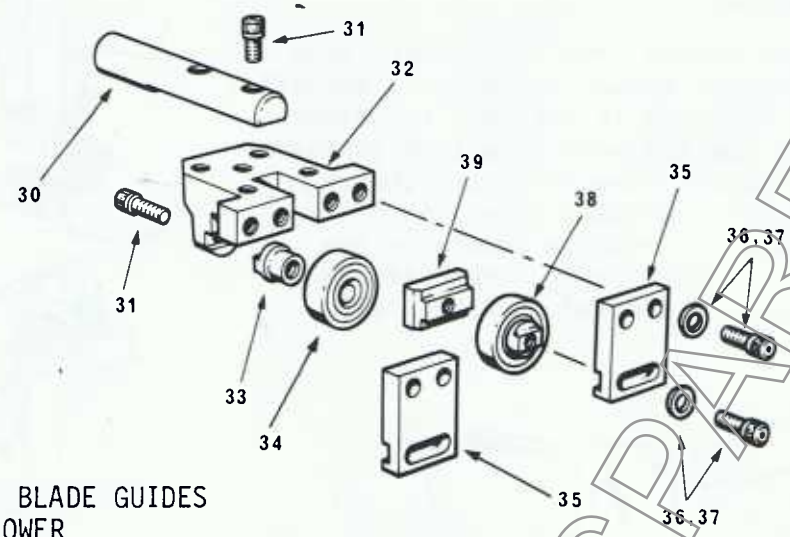


Fig.10.

APPROXIMATE THROAT CAPACITIES WITH SAW BLADE TWISTED AT 40°:-										
MACHINE TYPE	14"		18"		20"		24"		30"	
	ins	mm	ins	mm	ins	mm	ins	mm	ins	mm
DIMENSION 'A'	5⅞	150	9½	240	11	280	14	355	18⅝	475
DIMENSION 'B'	7	175	10	255	11¼	285	13¾	350	17⅝	450



COMBINATION BLADE GUIDES
- UPPER & LOWER

COMBINATION BLADE GUIDES (UPPER & LOWER) - ASSEMBLY No.SP290

NOTE : TWO - SP290 Combination Blade Guide Assemblies required per machine. Quantities shown below are for TWO assemblies.

ITEM	PART NUMBER	AND DESCRIPTION	No.OFF
30	2563	Arm	2
31		Soc. Hd. Cap Screw	6
32	2562	Guide Body	2
33	2565	Bearing Bush	2
34		Ball Bearing	2
35	2564	Guide Bracket	4
36		Soc. Hd. Cap Screw	8
37		Std. Washer	8
		SIDE ROLLERS	
38	SP306	Side Rollers for 5/8" wide blade	4
	SP307	" " " 1/2" " "	4
		GUIDE INSERTS	
39	SP316	Guide Inserts for 5/32" - 1/8" /4 - 3 mm Blade Width	4
	SP317	" " " 1/4" - 1/16" /6 - 5 mm " "	4
	SP318	" " " 1/2" - 3/8" /13 - 10mm " "	4
	SP319	" " " 5/8" /16 mm " "	4

SECTION 13

UNIVERSAL BLADE GUIDES.

The universal blade guides (see Fig.11) are most suitable for high speed sawing and general cut-off work where sawing accuracy is not very important. These blade guides use the same size inserts for all widths of saw blades (see Parts List below). The guides, which are available as an optional extra, utilise standard location points on the machine, and are therefore fully interchangeable with all other blade guides and attachments on all models.

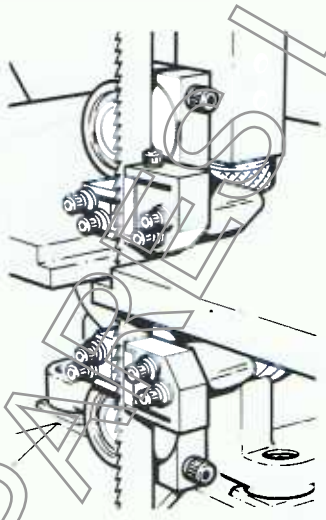
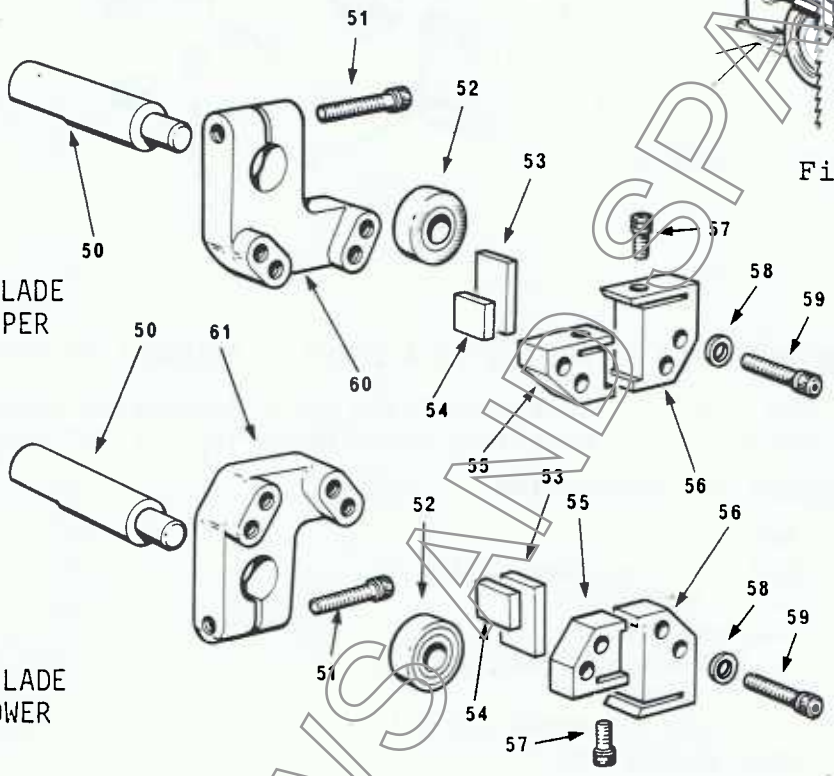


Fig.11.



UNIVERSAL BLADE GUIDES - UPPER

UNIVERSAL BLADE GUIDES - LOWER

UNIVERSAL BLADE GUIDES (UPPER) - ASSEMBLY No.SP454
UNIVERSAL BLADE GUIDES (LOWER) - ASSEMBLY No.SP455

NOTE : Items 50 to 59 common to both SP454 & SP455.
Quantities shown below are for BOTH assemblies.

ITEM	PART NUMBER	AND DESCRIPTION	No.OFF
50	3504	Support Arm	2
51		Soc. Hd. Cap Screw	2
52		Ball Bearing	2
53	3512	Guide Insert - Large	2
54	3513	Guide Insert - Small	2
55	3505	Guide Holder - Small	2
56	3506	Guide Holder - Large	2
57		Soc. Hd. Cap Screw	4
58		Std. Washer	8
59		Soc. Hd. Cap Screw	8
60	3507	Guide Body - Upper (SP454 ONLY)	1
61	3508	Guide Body - Lower (SP455 ONLY)	1

UNIVERSAL ROLLER BLADE GUIDES.

The universal roller blade guides (see Fig.12) are most suitable for high speed sawing with light feed pressure and can be used with various widths of saw blades. To set guides, adjust thrust rollers (Item 78) to touch back edge of blade. Slacken off thumb screws (Item 71) and adjust rollers (Item 73) so they are set back clear of the saw teeth, and turn eccentric bushes (Item 74) so the rollers support the saw blade. The guides, which are available as an optional extra, utilise standard location points on the machine, and are therefore fully interchangeable with all other blade guides and attachments on all models.

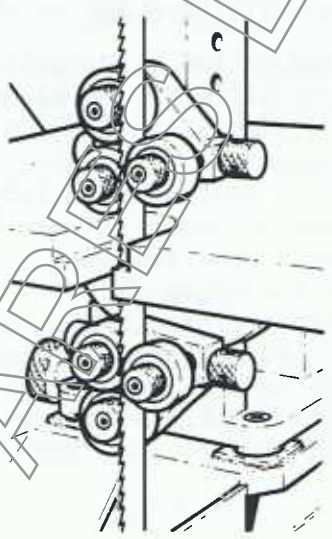
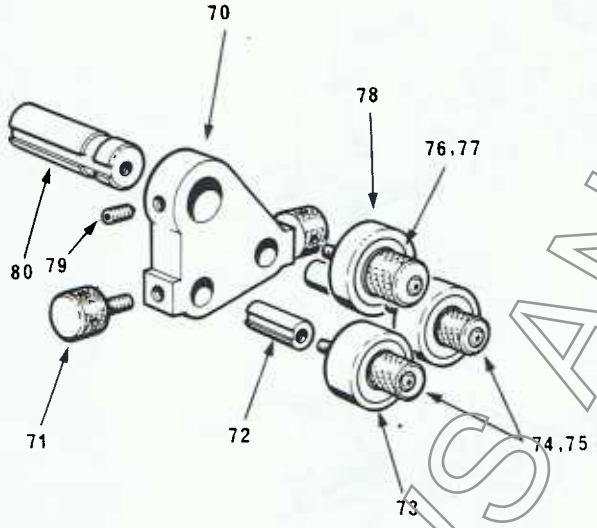
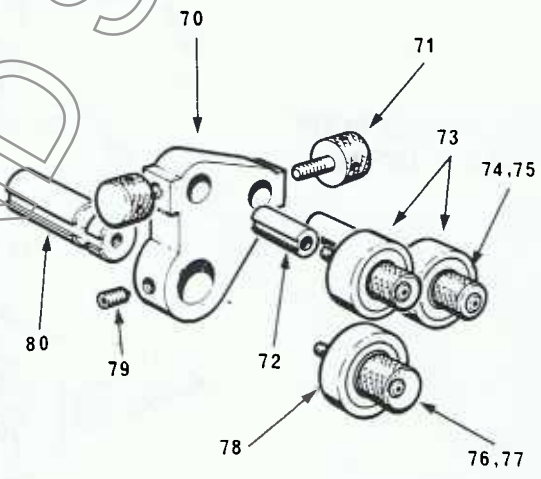


Fig.12.



UNIVERSAL ROLLER BLADE GUIDES - UPPER



UNIVERSAL ROLLER BLADE GUIDES - LOWER

UNIVERSAL ROLLER BLADE GUIDES (UPPER) - ASSEMBLY No.SM1559A
UNIVERSAL ROLLER BLADE GUIDES (LOWER) - ASSEMBLY No.SM1559B

NOTE : Quantities shown below are for BOTH assemblies.

ITEM	PART NUMBER	AND DESCRIPTION	No.OFF
70	7467	Guide Body	2
71	2535	Thumb Screw	4
72	7466	Guide Roller Spindle	4
73		Ball Bearing	4
74	2458	Eccentric Guide Roller Bush	4
75		Soc. Hd. Cap Screw	4
76	2459	Eccentric Thrust Roller Bush	2
77		Soc. Hd. Cap Screw	2
78		Ball Bearing	2
79		Soc. Set Screw	2
80	2456	Thrust Roller Spindle	2

SECTION 13

WOODCUTTING BLADE GUIDES.

Woodcutting blade guides (see Fig.13) can be used with all width of blades. Assemble upper support arm into slide bar and lower support arm into cradle and fully push in. Slacken thumb screws (Item 107) and pull fibre blocks outwards. Replace, tension and track saw blade. Adjust guides so that thrust rollers come into contact with back edge of saw blade and tighten locking screws on tool post and cradle. Slacken off thumb screws (Item 102) and adjust guide bodies until front face of fibre blocks are just behind saw teeth and tighten screws. Adjust fibre blocks so they support saw blade but do not grip it, and tighten screws

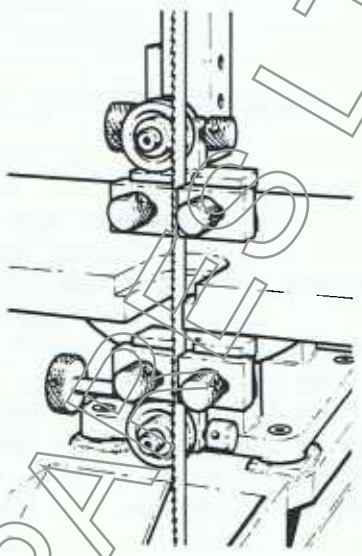
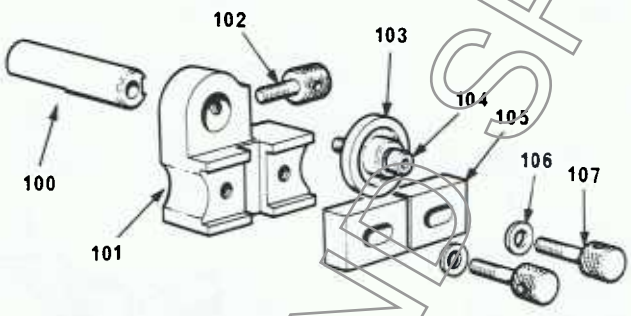
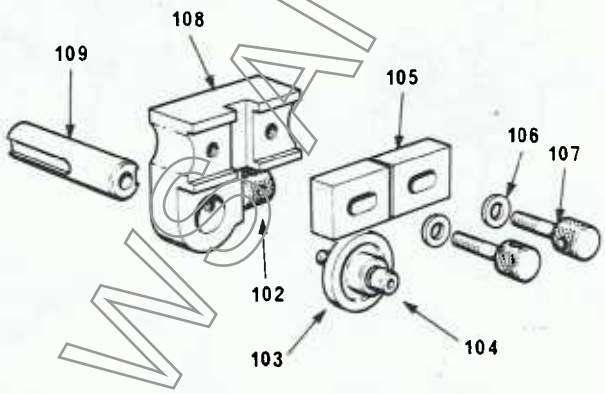


Fig.13.

WOODCUTTING BLADE GUIDES - UPPER



WOODCUTTING BLADE GUIDES - LOWER



WOODCUTTING BLADE GUIDES - UPPER - ASSEMBLY No.SP315
WOODCUTTING BLADE GUIDES - LOWER - ASSEMBLY No.SP325

NOTE : Items 102 to 107 common to SP315 & SP325, quantities shown are for both assemblies.

ITEM	PART NUMBER	DESCRIPTION	No.OFF
100	2619	Support Arm - Upper	1
101	2643	Guide Body - Upper	1
102	2535	Thumb Screw	2
103	SP322	Thrust Roller Assembly	2
104		Soc. Hd. Shoulder Screw	2
105	2624	Guide Block	4
106		Std. Washer	4
107	2621	Thumb Screw	4
108	2644	Guide Body - Lower	1
109	2645	Support Arm - Lower	1

SAW AND SPEED SELECTION CHART.

MATERIAL		MATERIAL THICKNESS			
		UNDER ¼"	¼" - ½"	½" - 1"	OVER 1"
ANALINE FORMALDEHYDE	FPM TPI	3500 18	3200 14	3000 10	2900 3S
ALUMINIUM - Die Casting	FPM TPI	1500 18	1200 10	900 8	
ALUMINIUM - Sand Cast Alloy	FPM TPI	1200 18	1000 14	800 10	
ALUMINIUM - Rolled & Extruded Sections	FPM TPI	2500 18	2000 10	1500 8	1400 6S
ASBESTOS - Corrugated	FPM TPI	3000 14	3000 10	3000 6	3000 3S
ASBESTOS - Paper	FPM TPI	3000 10	3000 8	3000 6	2800 3S
BABBIT	FPM TPI	2500 18	2000 14	1500 8	1200 6
BAKELITE	FPM TPI	2500 14	2300 10	2000 8	1500 6S
BONE	FPM TPI	3500 10	3200 8	3000 6	3000 3S
BRASS - Soft Commercial	FPM TPI	2500 18	2000 14	1500 8	1300 6
BRONZE - Manganese	FPM TPI	800 18			
BRONZE - Silicon	FPM TPI	1200 18	900 14		
CADMIUM	FPM TPI	3500 10	3200 8	3000 6H	2800 4H
CARBON	FPM TPI	3600 18	3600 14	3600 6	3000 3S
CARDBOARD - Corrugated	FPM TPI	3500 SC	3500 SC	3000 SC	3000 SC
CARDBOARD - Sheet	FPM TPI	3000 14	3000 10	3000 8	2500 6H
CELLULOSE ACETATE	FPM TPI	3500 14	3500 10	3000 8	2500 3S
CELLULOSE NITRATE	FPM TPI	1500 10	1200 8	1100 6S	1000 3S

Speeds indicated are for Carbon Steel Saw Blades.
(Regular tooth where not stated otherwise.)
H = Hook Tooth S = Skip Tooth SC = Scallop Blade KN = Knife Edge Blade
FPM = Feet Per Minute TPI = Teeth Per Inch

SAW AND SPEED SELECTION CHART.

MATERIAL		MATERIAL THICKNESS			
		UNDER ¼"	¼" - ½"	½" - 1"	OVER 1"
COPPER - Beryllium	FPM TPI	2500 14	2500 10	1600 6	1200 3S
COPPER - Hard Drawn	FPM TPI	800 18			
COPPER - Commercial Pure	FPM TPI	3200 18	3000 14	2700 6	2500 3S
CORK	FPM TPI	3500 14	3500 10	3500 6H	3500 4H
ETHYL CELLULOSE	FPM TPI	3500 10	3000 8	2500 6	2000 3S
FIBRE BOARD	FPM TPI	2500 18	1500 14	1100 10	1000 6
FORMICA	FPM TPI	3500 18			
FRONTIER METAL	FPM TPI	800 18			
GLASS FIBRE	FPM TPI	1000 18	1000 14	1000 10	1000 6H
GRAPHITE	FPM TPI	3000 18	3000 14	3000 10	2500 4H
HORN - Animal	FPM TPI	2500 24	2000 18	1500 14	1200 10
LEAD	FPM TPI	3000 18	2500 14	1800 10	1200 6S
LEATHER	FPM TPI	3500 14	3200 10	3000 6	2800 3S
LINEN	FPM TPI	3500 KN	3500 KN	3500 SC	3500 SC
MAGNESIUM	FPM TPI	3500 14	3300 10	3200 6H	3000 4H
NEOPRENE	FPM TPI	3000 10	2800 8	2500 6	2300 4H
PAPER - Sheet	FPM TPI	3000 18	3000 14	2500 10	2500 6H
PAPER - Tissue	FPM TPI	3500 SC	3500 SC	3500 SC	3000 SC

Speeds indicated are for Carbon Steel Saw Blades.
(Regular tooth where not stated otherwise.)
H = Hook Tooth S = Skip Tooth SC = Scallop Blade KN = Knife Edge Blade
FPM = Feet Per Minute TPI = Teeth Per Inch

SAW AND SPEED SELECTION CHART.

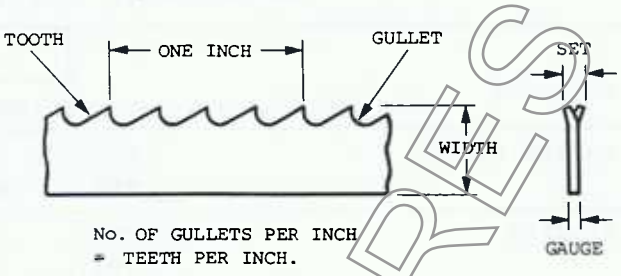
MATERIAL		MATERIAL THICKNESS			
		UNDER ¼"	¼" - ½"	½" - 1"	OVER 1"
PAPIER MACHE	FPM TPI	3500 KN	3500 10	3000 6H	3000 4H
PERSPEX	FPM TPI	3500 14	3500 10	3000 6	2500 3S
PHENOL FORMALDEHYDE	FPM TPI	3500 14	3500 10	3000 6	3000 3S
PLEXIGLASS	FPM TPI	3500 14	3500 10	3000 6	2500 3S
POLYSTYRENE	FPM TPI	3000 10	2500 8	2000 6	2000 3S
RUBBER - Crepe	FPM TPI	3500 10	3500 8	3500 6	3000 6S
RUBBER - Hard	FPM TPI	3000 10	2800 8	2500 6	2300 4H
SILVER	FPM TPI	2800 18	2400 14	2200 10	2000 6
STRAW BOARD	FPM TPI	3500 14	3500 10	3000 8	3000 6S
STRING	FPM TPI	3500 SC			
TUFNOL	FPM TPI	2500 14	2300 10	2000 6H	1500 6H
WOOD	FPM TPI	3600 14	3600 10	3600 6H	3600 4H
ZINC	FPM TPI	2500 14	2300 10	2000 6H	1500 4H

Speeds indicated are for Carbon Steel Saw Blades.
(Regular tooth where not stated otherwise.)
H = Hook Tooth S = Skip Tooth SC = Scallop Blade KN = Knife Edge Blade
FPM = Feet Per Minute TPI = Teeth Per Inch

SECTION 18

SAW TERMINOLOGY.

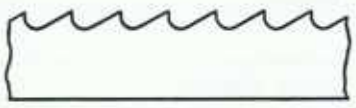
An understanding of the design and application of the various types of saw blades obtainable is essential if the bandsawing technique is to be fully exploited. Selection of the most suitable blade for the job is very important as a poor choice can lead to much wasted time and money.



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.

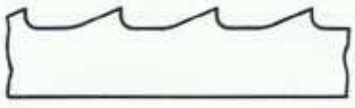
TOOTH FORM refers to the profile of the tooth. Bandsaw blades are generally manufactured with one of three basic forms, namely, Regular, Skip, or Hook tooth form. Terminology varies among saw blade manufacturers and these may be otherwise referred to as Precision, Buttress, and Claw tooth respectively.

REGULAR TOOTH saw blades are the most common in use because the zero front rake and well rounded gullet 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.

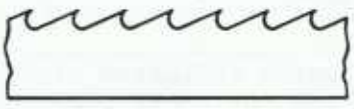


REGULAR TOOTH

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 copper alloys. Fast economical sawing of hardwoods and plastics are possible with this type of saw blade. 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. 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

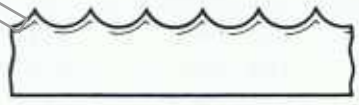
WAVY SET blades have the teeth alternately set to the left and right in groups or waves. With this formation of tooth set, relatively few teeth are cutting at the side of the kerf and therefore there is some tendency for the saw blade to jam when sawing abrasive materials.

WAVY SET

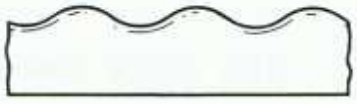
SAW GAUGE is the actual thickness of the body of the saw blade. Some makers produce special gauge saw blades for specific purposes, but generally saw blades up to and including ½" wide are .025", and ⅝" wide are .032".

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, felt and composite materials such as transformer coils. 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

BANDSAWING PRACTICE.

For straight sawing use the widest saw blade the machine will accept. The success of a bandsawing operation is determined by the accuracy, finish, blade cost and operating time involved. It is usually possible to improve on one of these factors at the expense of the others, and this may be expressed in general terms as follows :-

Maximum saw blade life : Medium saw blade tooth pitch, speed and feed.
Minimum sawing time : Coarse tooth pitch,fast speed and heavy feed.
Fine accurate finish : Fine tooth pitch, fast speed and light feed.

The foregoing must be interpreted with discretion as there are limits to which the factors involved can be varied.

BANDSAWING WOOD.

Sometimes, even though the machine appears to be in good working condition, the blade persists in wandering from the true path of the cut. This is usually due to the wood being forced into the blade at a greater pace than the 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, remove the blade and sharpen alternative teeth on the side of the blade opposite to the direction of wander.

Bowing of the blade in the cut is caused by too many teeth in engagement giving rise to the need for excessive feed pressure. This condition is considerably worsened by the use of a narrow blade or one that is dull.

The remedy would therefore be in using less feed pressure and a sharp blade of the greatest possible width. When dealing with deep cuts or very hard wood, it can prove a distinct advantage to use a blade that has been modified by having the tops of two out of every three teeth removed.

The sawing of damp wood, particularly the hard woods can be made easier by the use of a skip tooth metal cutting blade. The drawback with this blade is of course, that it cannot be sharpened.

It is often found that when cutting a scroll or similar shape the forward cut cannot be completed and the wood 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 backing out from a long straight cut it helps if the kerf is kept open by means of a small wedge.

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 pin the waste pieces in position. Care being taken, of course, to avoid placing the pins in the path of a subsequent cut.

SHARPENING WOODCUTTING BLADES.

It is most important that the blade 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 blade. The blade must be in reasonable condition to warrant re-sharpening. A 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.

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 inches or so of the blade to be sharpened at one setting.

The blades should be sharpened square across and without hook, i.e. the front face of the hook square to the flank of the 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 blade using one stroke per tooth. Should one stroke not be sufficient to produce a sharp tooth, go around the 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 and to avoid weakening the blade by forming a sharp corner in the gullet.

Usually it is not necessary to re-set the teeth 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 blade be sharpened after it has been set.

A small electric brazing machine is available to facilitate the repair of woodcutting blades and details of this will be sent upon request.

BANDSAWING PLASTICS.

Much that has been said about bandsawing wood also of course applies to plastics, the main exception being that a metal cutting blade running at a lower speed is employed.

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

Heat generated by sawing friction cause thermoplastic materials to become sticky and there is a marked tendency for the blade teeth to be clogged by swarf, particularly when blunt or fine pitch blades are used. The remedy is to employ a coarse blade and lubricate it with water if necessary. Where there is a risk of water stains or absorption as in the case of insulating materials, the best recourse is to experiment with lower blade speeds.

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

BLADE WIDTH FOR CONTOUR SAWING.

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 deformation at low speed or 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 be still 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.

The Saw Blade Width Selection Chart below offers a basic guide on this point. 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 blade beyond its limit.

SAW BLADE WIDTH	1/8"	3/16"	1/4"	3/8"	1/2"	5/8"
MINIMUM SAWING RADIUS	5/16"	5/8"	1"	1 1/2"	2 1/2"	4"

NOTE : Blade width capacity of machines vary according to model.

SECTION 18

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.
Teeth of blade not sharpened or set evenly.(Woodcutting blades only)

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.
Blade pitch too fine.
Guide inserts snagging set of teeth.
Speed too fast.

TEETH TORN FROM BLADE :

Excessive feed pressure.
Gullets of teeth loading.
Pitch of teeth too coarse.
Blade speed too fast.

BLADE DEVELOPING TWIST :

Excessive feed pressure, and/or too much blade tension.
Guide inserts snagging blade.
Blade too wide for radius of cut.
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.

CIRCLE CUTTING ATTACHMENT.

Fig.1 shows the circle cutting attachment (Part No.SP260) in use on a machine, which facilitates the production sawing of circular blanks up to 18" dia. The unit is easily fitted to the tool post and thus may be raised and lowered when feeding blanks without disturbing the setting of the location pin. A drilled or punched location point will be required in each blank, the location being positioned at a distance equal to the sawing radius from one edge. Sufficient material should be allowed on the other sides of the blank to prevent the blade emerging from the cut until the full circle has been completed. Select the blade width according to the radius to be sawn. The location pin must be set to lie tangential to the blade otherwise blade wander will result. If the blade tends to cut away from a true circle, the pin position is incorrect, or possibly the blade is too wide.

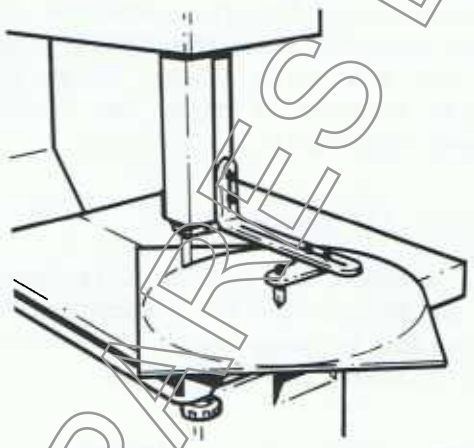


Fig.1.

RIP FENCE.

Fig.2 shows the rip fence (Part No.SP302) in use on a machine, a useful accessory which widens the scope of the machine considerably, as apart from straight forward ripping it makes possible the production of tenons of consistent thickness. When cutting several tenons of the same thickness, set the fence, 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.

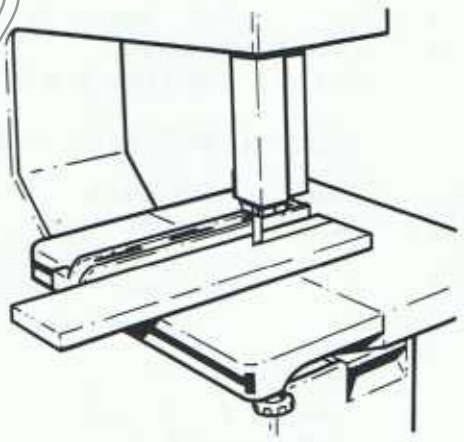


Fig.2.

ABRASIVE BAND GUIDE.

Fig.3 shows the abrasive band guide (Part No. SP298) set up on a machine. One inch wide abrasive bands are available in 40,80 or 120 grit and are ideal for a large variety of small finishing and deburring operations. To set up the abrasive band guide :- Remove the saw blade, blade guides, blade guard and table insert. Assemble abrasive band guide into the same holes as used to locate the blade guides. Mount the abrasive

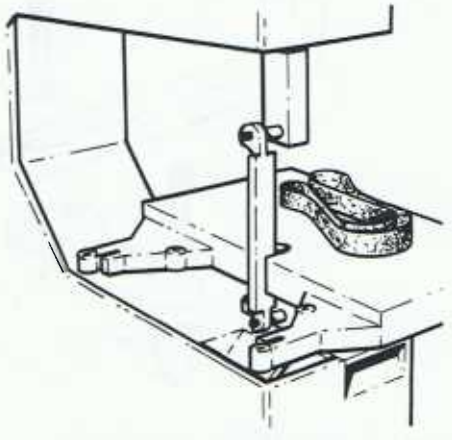


Fig.3.

band on the bandwheels, with the joint of band overlap (on the abrasive side) to face upwards from the table. Apply tension as for a ¼" wide blade. Align face of guide to back of band. Use highest blade speed available.

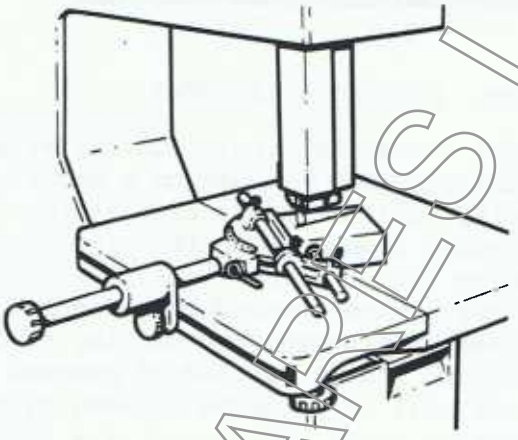


Fig.4.

PUSHER ATTACHMENT.

Fig.4 shows the pusher attachment (Part No.SP198) in use on a machine. The pusher provides an easy means of feeding and controlling the workpiece.

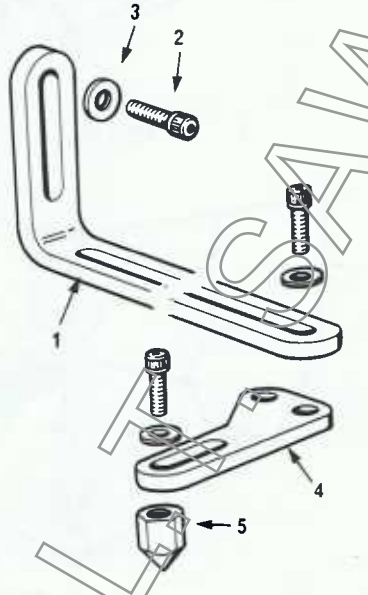
PARTS LISTS & ILLUSTRATIONS FOR OPTIONAL EXTRA EQUIPMENT.

CIRCLE CUTTING ATTACHMENT - ASSEMBLY No.SP260

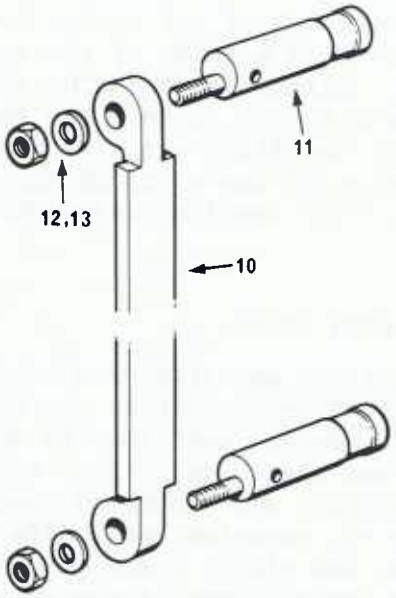
ITEM	PART NUMBER	AND DESCRIPTION	No.OFF
1	2545	Arm	1
2		Soc. Hd. Cap Screw	5
3		Std. Washer	5
4	2544	Bracket	1
5	2543	Location Pin	1

ABRASIVE BAND GUIDE - ASSEMBLY No.SP298

10	2426	Back Guide	1
11	2425	Support Arm	2
12		Std. Washer	2
13		Hex. Nut	2



CIRCLE CUTTING ATTACHMENT



ABRASIVE BAND GUIDE

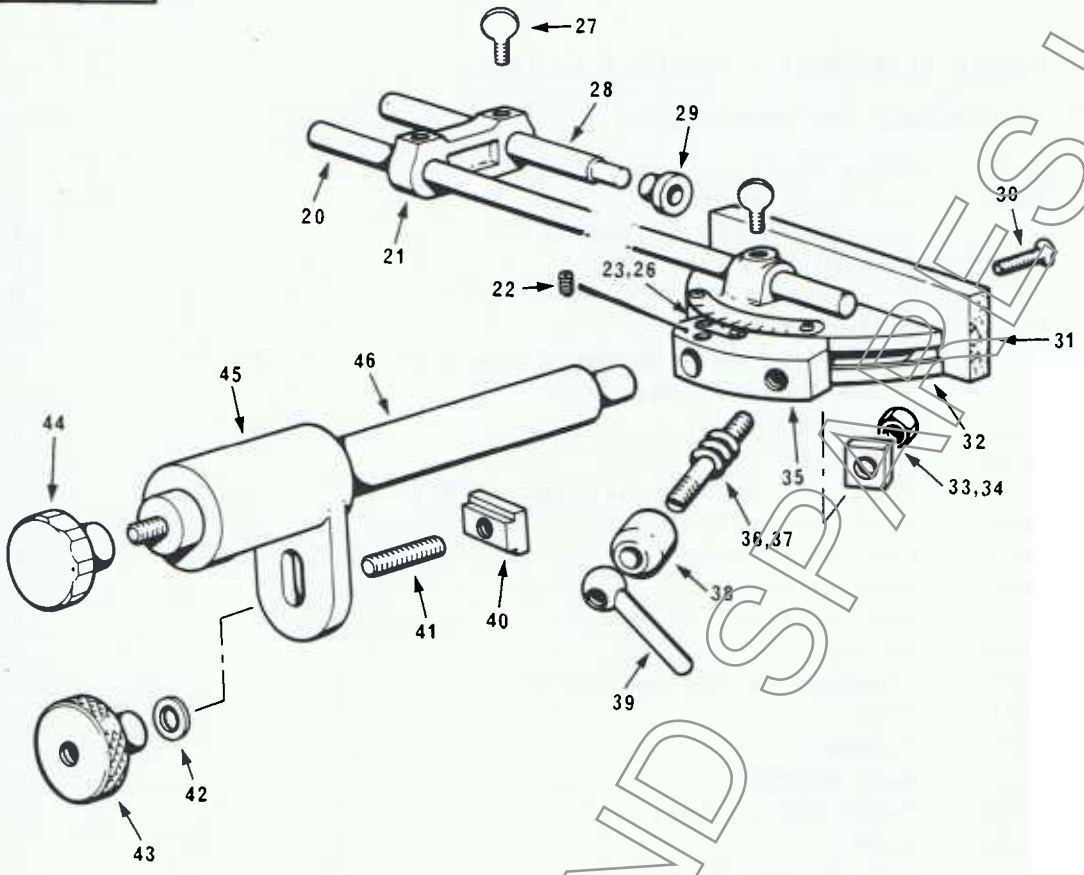
PUSHER ATTACHMENT - ASSEMBLY No.SP198

ITEM	PART NUMBER	DESCRIPTION	No.OFF
20	1822	Slide Shaft	1
21	1507	End Stop Bracket	1
22		Soc. Set Screw	1
23	1388	Zero Plate	1
24		Drive Screw	2
25	1513	Indicator Scale	1
26		Rd. Hd. Screw	2
27		Thumb Screw	3
28	1526	Stop Rod	1
29	1837	End Stop	1
30		C'sk. Hd. Screw	2
31	1821	Wood Facing Plate	1
32	1511	Protractor Body	1
33	1820	Special Nut	1
34		Hex. Lock Nut	1
35	1514	Cradle	1
36	1499	Compression Spring	1
37	1516	Stud	1
38	1515	Sleeve	1
39	1143	Ball Handle	1
40	2842	Tenon Nut - Small	1
41	3229	Stud	1
42		Std. Washer	1
43	2513	Thumb Knob	1
44		Hand Knob	1
45	2512	Housing	1
46	2514	Shaft	1

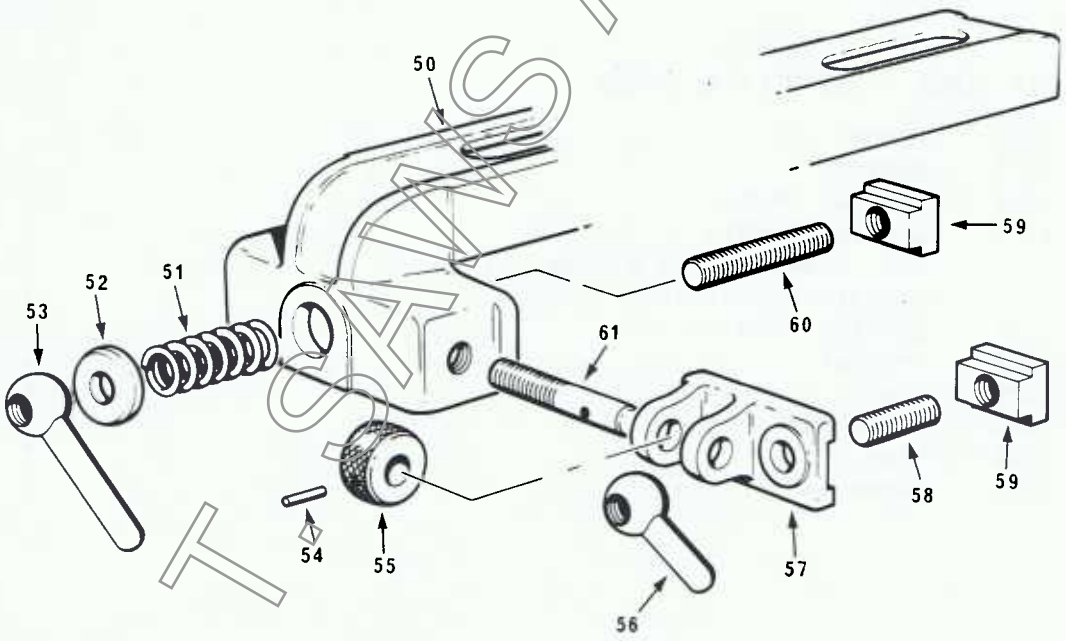
RIP FENCE - ASSEMBLY No.SP302

50	1205	Fence	1
51	2575	Spring	1
52	1114	Special Washer	1
53	1143	Locking Handle	1
54		Std. Dowel	1
55	1112	Adjustment Collar	1
56	1111	Locking Handle	1
57	1206	Bracket	1
58	3229	Stud	1
59	2842	Tenon Nut - Small	2
60	2841	Stud	1
61	1113	Adjustment Screw	1

SECTION 22



PUSHER ATTACHMENT



RIP FENCE

OPTIONAL EXTRAS & ACCESSORIES

ITEM	PART NUMBER AND DESCRIPTION	
70		'Cyclair' Extractor Unit - 1 Phase 'Cyclair' Extractor Unit - 3 Phase
71	SM1135	Extractor Coupling Kit (upper & lower), enables Extractor Unit to be coupled directly to machine (see overleaf).
72	SM1146	Extractor Coupling Kit (lower), enables Extractor Unit to be coupled directly to machine (see overleaf).
73		Model BSO.16 Welder & Grinder Unit, for joining blades up to ⅝" wide from bulk coil stocks. Complete with motorised grinder, cropper and annealing controls.

NOT ILLUSTRATED :

Fused Isolator

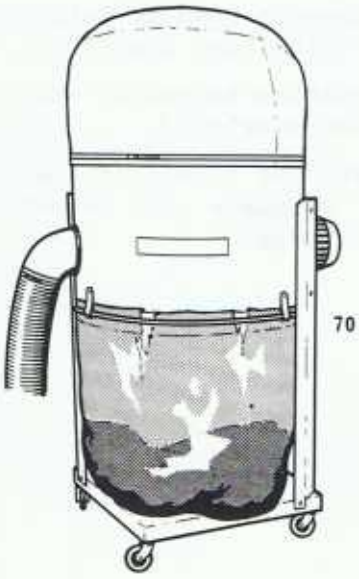
Isolator, lock with 2 keys

Key Operated Switch

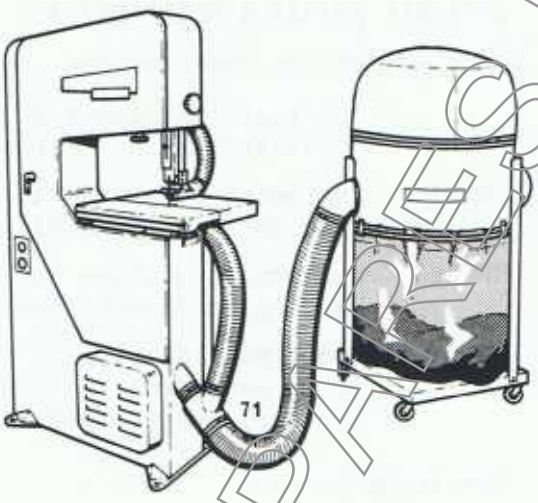
Trailing Foot Switch

240 Volt Lighting

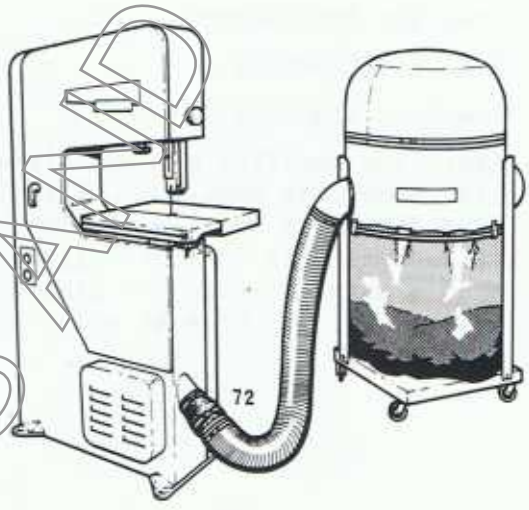
Low Volt Lighting (24 Volt)



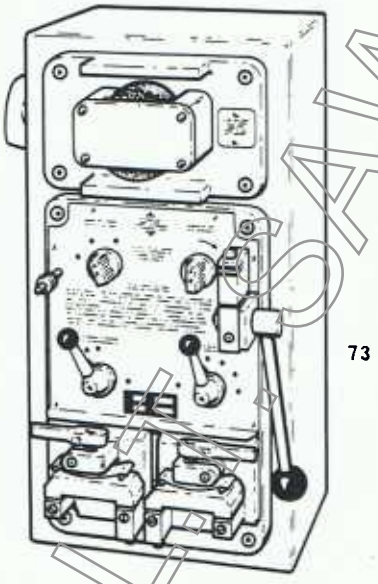
'CYCLAIR'
EXTRACTOR UNIT



Typical installation showing 'Cyclair' extractor unit coupled to bandsaw using SM1135 upper & lower coupling kit.



Typical installation showing 'Cyclair' extractor unit coupled to bandsaw using SM1146 lower coupling kit.



MODEL BSO.16
WELDER & GRINDER UNIT

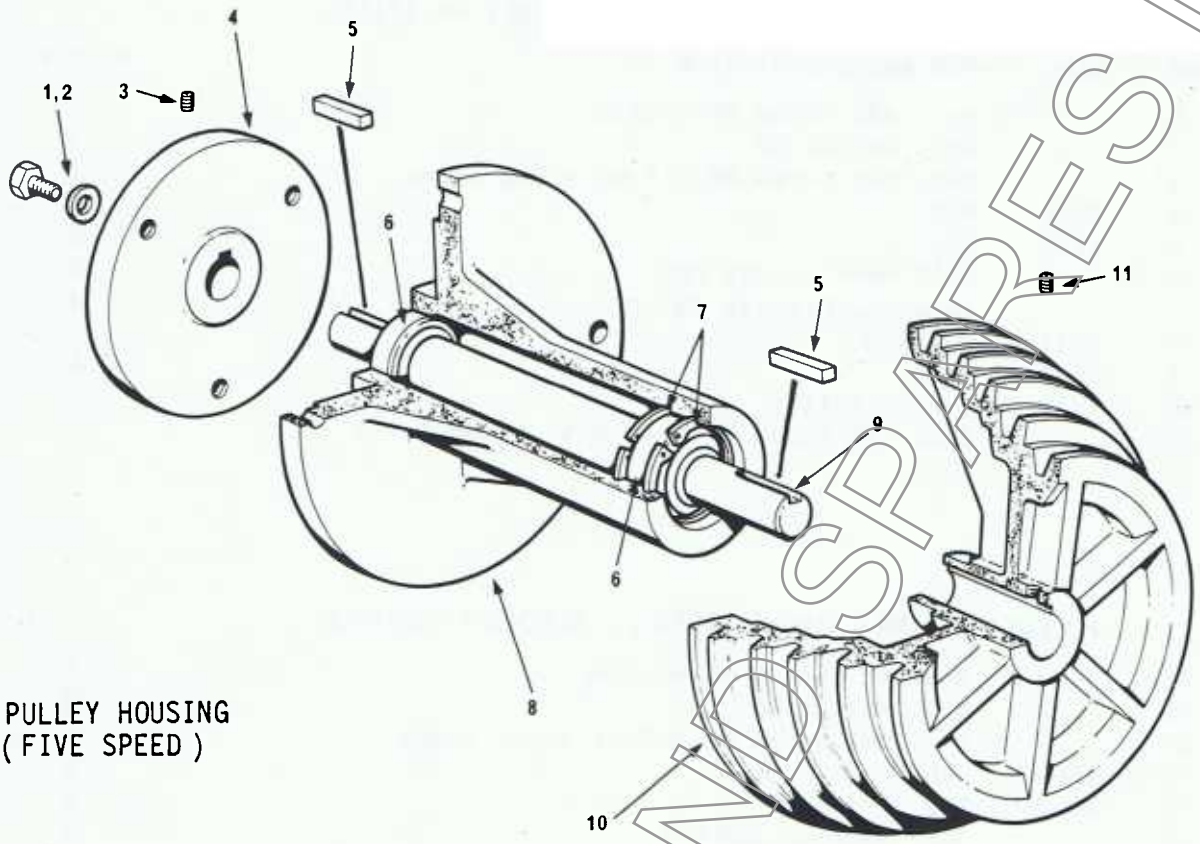
PULLEY HOUSING (FIVE SPEED) - ASSEMBLY No.SP158C

ITEM	PART NUMBER	DESCRIPTION	No.OFF
1		Hex. Hd. Screw	3
2		Std. Washer	3
3		Soc. Set Screw	1
4	2561	Hub	1
5	1149	Key	2
6		Ball Race	2
7		Internal Circlip	2
8	2541	Housing	1
9	2542	Shaft	1
10	1228	5-Step Pulley	1
11		Soc. Set Screw	1

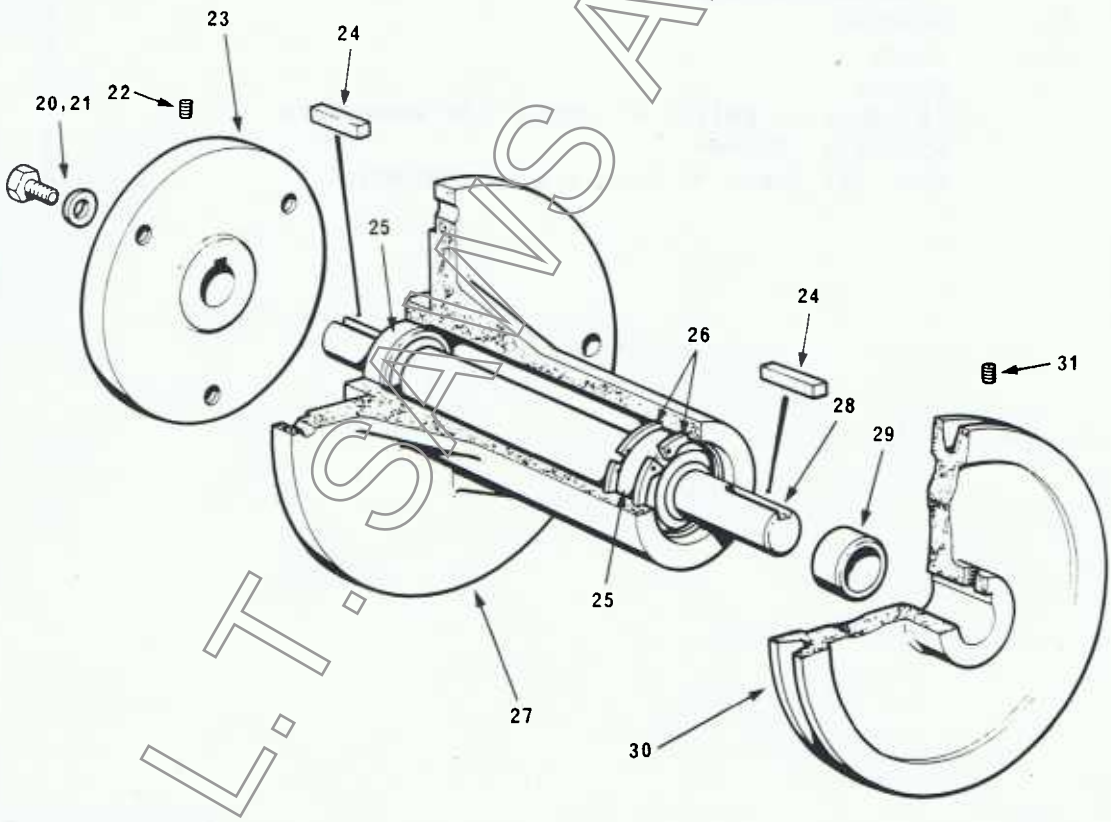
PULLEY HOUSING (SINGLE SPEED) - ASSEMBLY No.SP83C

20		Hex. Hd. Screw	3
21		Std. Washer	3
22		Soc. Set Screw	1
23	2561	Hub	1
24	1149	Key	2
25		Ball Race	2
26		Internal Circlip	2
27	2541	Housing	1
28	2542	Shaft	1
29	1163	Spacer	1
30		'A' Section Pulley	1
31		Soc. Set Screw	1

SECTION 31



PULLEY HOUSING
(FIVE SPEED)



PULLEY HOUSING
(SINGLE SPEED)

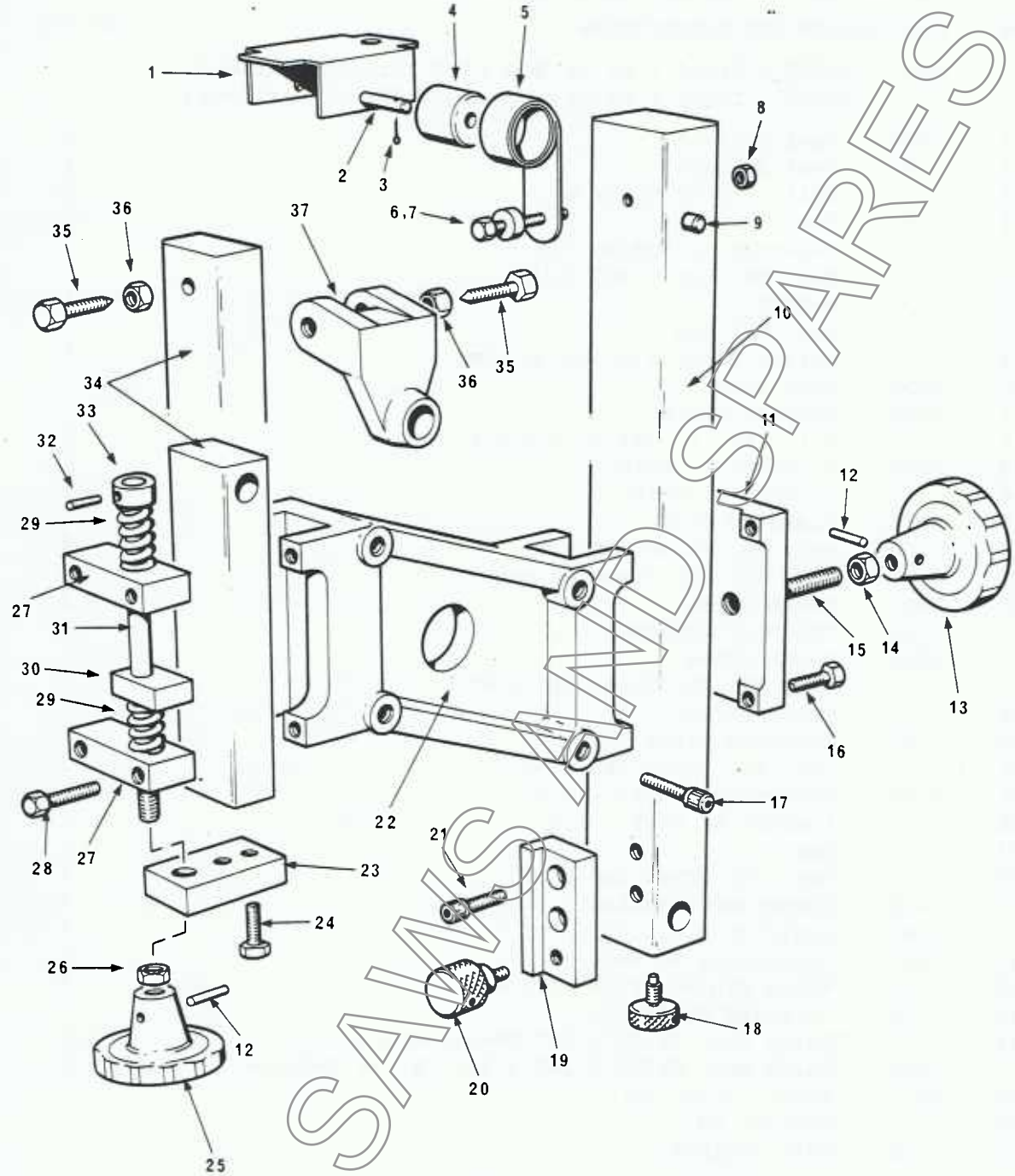
TOP BRACKET - ASSEMBLY Nos.SP598/SP599

ITEM	PART NUMBER	DESCRIPTION	No.OFF
		NOTE : SP598 - Items 1 to 34 ONLY (20" Throat Machines) SP599 - Items 1 to 37 (14" & 30" Throat Machines)	
1	2378	Reel Bracket	1
2	2379	Reel Spindle	1
3		Split Pin	2
4	4105	Reel	1
5		Tensator Spring	1
6		Hex. Hd. Screw	1
7	4104	Washer	1
8		Hex. Nut	1
9		Spring Dowel	1
10	4106	Tool Post	1
11	4108	Capping Plate	1
12		Mills Pin	2
13	5130	Handknob	1
14		Locknut	1
15	2339	Clamping Stud	1
16		Hex. Hd. Screw	4
17		Soc. Hd. Cap Screw	4
18	2501	Thumb Screw	1
19	2453	Top Guard Bracket	1
20	2338	Thumb Screw	1
21		Soc. Hd. Cap Screw	2
22	4103	Top Bracket	1
23	2345	Threaded Block	1
24		Hex. Hd. Screw	2
25	5132	Handknob - L.H.	1
26		Locknut - L.H.	1
27	3258	Cap	2
28		Hex. Hd. Screw	4
29	2490	Compression Spring	2
30	2341	Register Block	1
31	3260	Tensioning Screw	1
32		Mills Pin	1
33	2520	Threaded Collar	1
34	4107	Guide Bar (SP598 - 20" Throat Machines)	1
	3259	Guide Bar (SP599 - 14" & 30" Throat Machines)	1
35	5682	Pivot Screw	2
36		Locknut	2
37	5681	Tilt Bracket	1

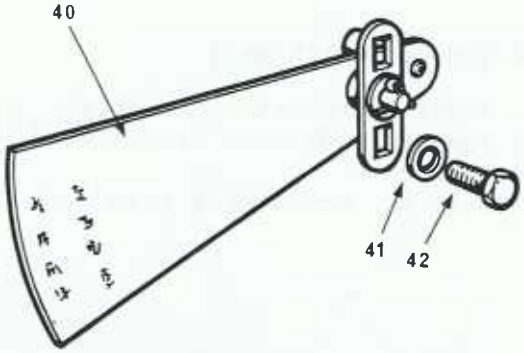
TENSION INDICATOR ASSEMBLY

40	SM1025	Tension Indicator Assembly	1
	SM963/1	Tension Indicator Assembly (U.S.A. ONLY)	1
41		Washer	2
42		Hex. Hd. Screw	2

SECTION 33



TOP BRACKET



TENSION INDICATOR

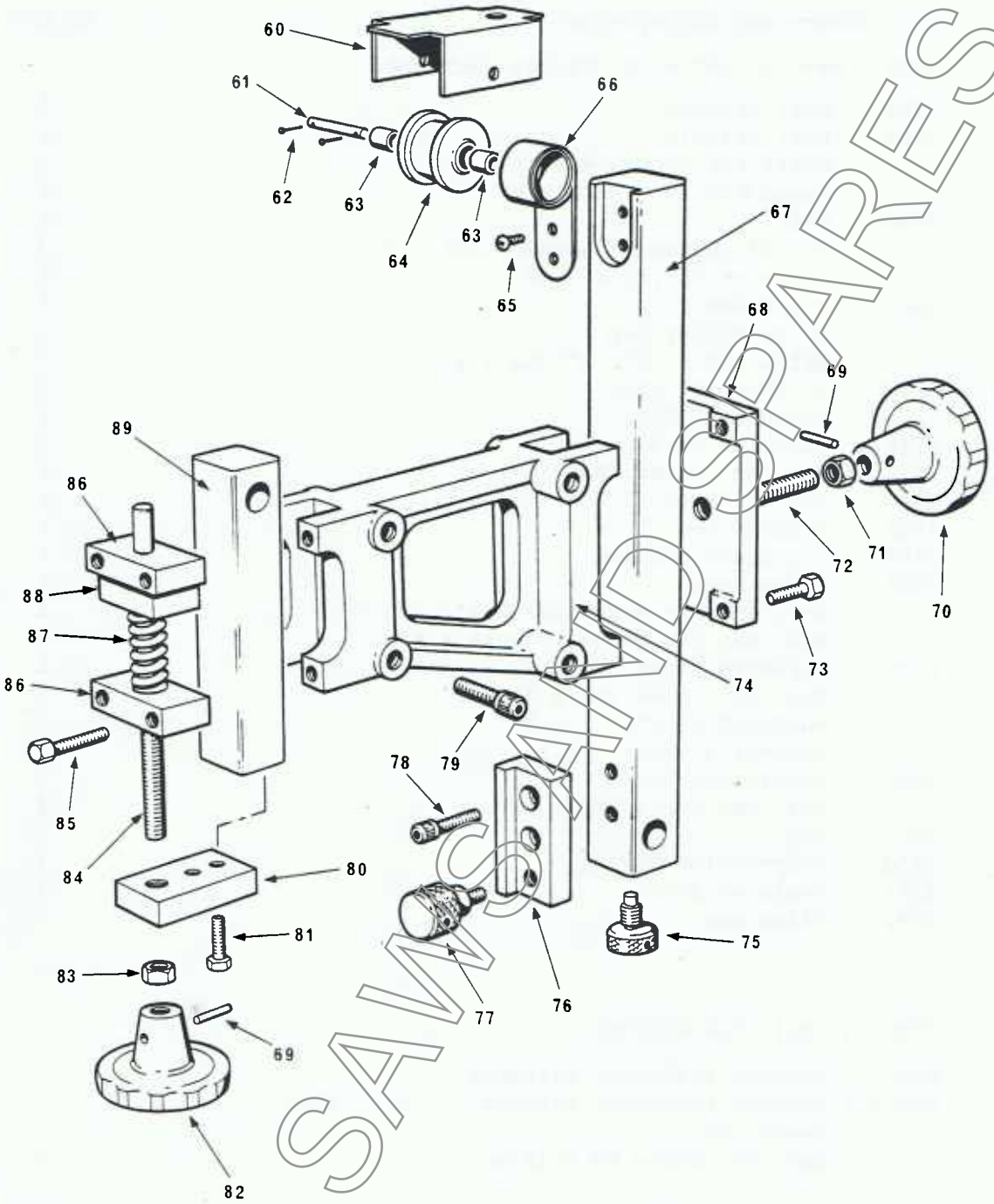
TOP BRACKET - ASSEMBLY No.SP283

ITEM	PART NUMBER	DESCRIPTION	No.OFF
		NOTE : Used on 18" & 24" Throat Machines.	
60	2378	Reel Bracket	1
61	2379	Reel Spindle	1
62		Split Pin	2
63		Compo Bush	2
64	2380	Reel	1
65		Rd. Hd. Screw	2
66		Tensator Spring	1
67	2343	Top Guide Pillar	1
68	2331	Guide Pillar Cap	1
69		Mills Pin	2
70	5130	Handknob	1
71		Locknut	1
72	2339	Clamping Stud	1
73		Hex. Hd. Screw	4
74	2330	Top Bracket	1
75	2501	Thumb Screw	1
76	2453	Top Guard Bracket	1
77	2338	Thumb Screw	1
78		Soc. Hd. Cap Screw	2
79		Soc. Hd. Cap Screw	4
80	2345	Threaded Block	1
81		Hex. Hd. Screw	2
82	5132	Handknob - L.H.	1
83		Locknut - L.H.	1
84	2340	Tensioning Screw	1
85		Hex. Hd. Screw	4
86	2337	Cap	2
87	2490	Compression Spring	1
88	2341	Register Block	1
89	2342	Slide Bar	1

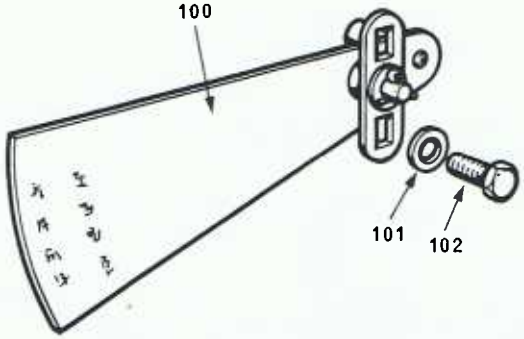
TENSION INDICATOR ASSEMBLY

100	SM1025	Tension Indicator Assembly	1
	SM963/1	Tension Indicator Assembly (U.S.A. ONLY)	1
101		Washer	2
102		Hex. Hd. Screw	2

SECTION 33



TOP BRACKET



TENSION INDICATOR

FIXED BANDWHEEL HUB - ASSEMBLY No.SM213

ITEM	PART NUMBER AND DESCRIPTION		No.OFF
	NOTE : Fitted to all machines from Serial No.56399 onwards. Identified by 'grooved ring' on bandwheel hub.		
121	5134	Spindle	1
122	5115	Bandwheel Hub	1
123		Circlip Internal	2
124		Ball Bearing	2
125	5116	Spacer	1
126	4941	Washer	1
127		Hex. Hd. Screw	4
128		Washer	3

TRACKING BANDWHEEL HUB - ASSEMBLY No.SM284

NOTE : Fitted to all machines from Serial No.56399 onwards. Identified by 'grooved ring' on bandwheel hub.

122	5115	Bandwheel Hub	1
123		Circlip Internal	2
124		Ball Bearing	2
125	5116	Spacer	1
127		Hex. Hd. Screw	3
128		Washer	3
130	5117	Jacking Screw	1
131	5114	Spindle	1
132		Soc. Set Screw	2
133	5118	Control Knob	1
134	2466	Instruction Label	1
135	2473	Bandwheel 14" Dia (14", 20" & 30" Throat Machines)	
	1102	Bandwheel 12" Dia (18" & 24" Throat Machines)	

WHEEL BRUSH - ASSEMBLY No.SM1001

140	5485	Stud	1
141	2270	Wheel Brush	1
142		Washer	2
143		Hex. Nut	3

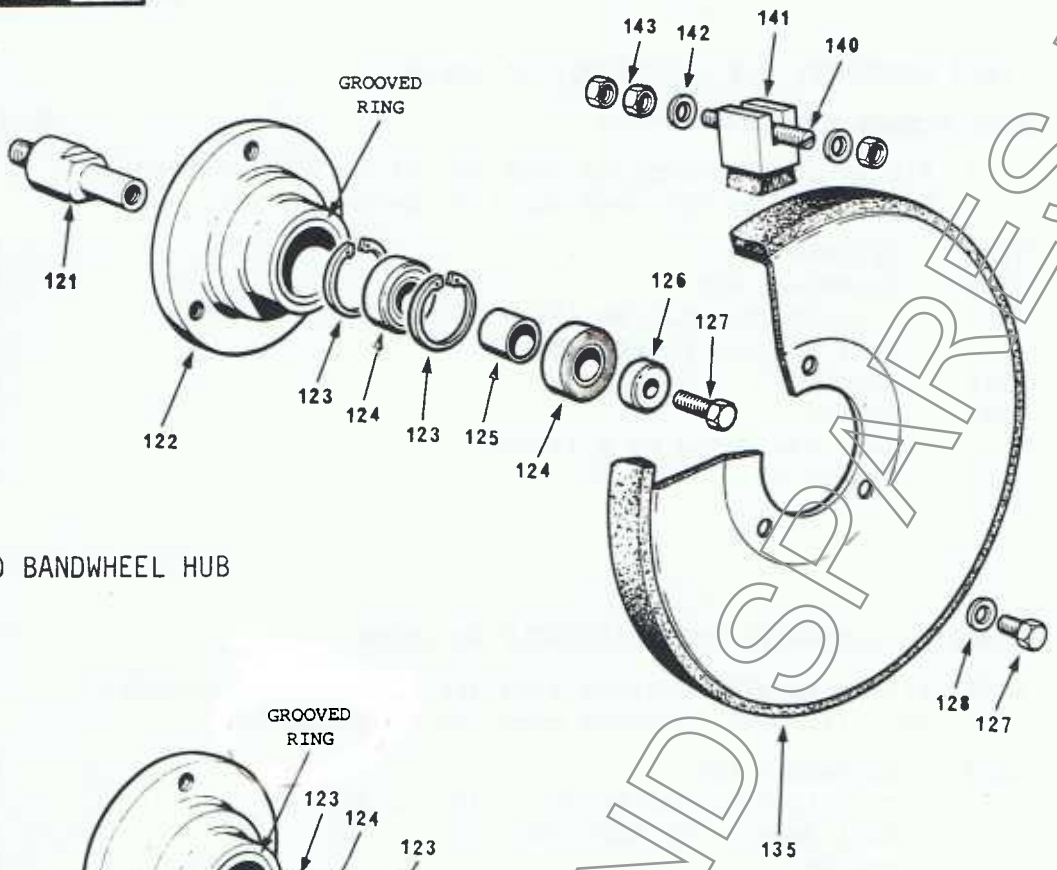
PIVOT BRACKET - ASSEMBLY No.SP333

NOTE : 18", 20" & 24" Throat Machines ONLY.

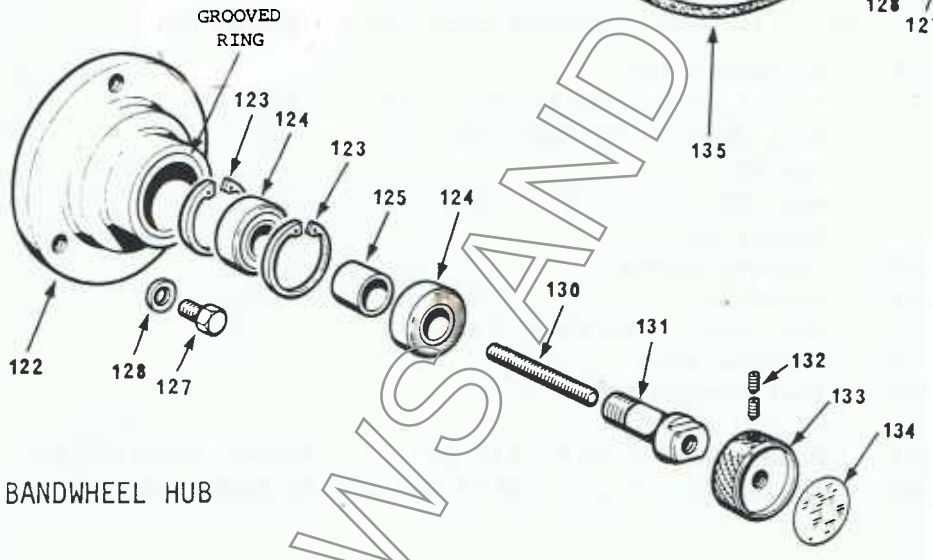
150	3708	Bridge Piece	1
151		Hex. Locknut	2
152	5682	Pivot Screw	2
153	5681	Tilt Bracket	1
154		Soc. Hd. Cap Screw	3

SECTION 33

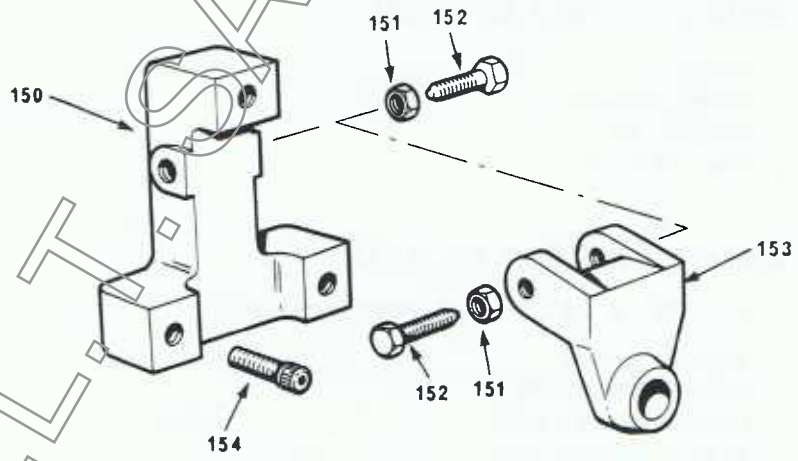
WHEEL BRUSH



FIXED BANDWHEEL HUB



TRACKING BANDWHEEL HUB



PIVOT BRACKET

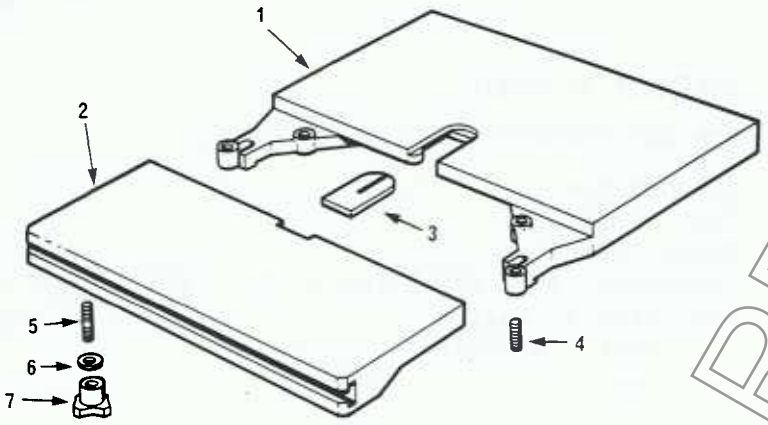
TABLE - ASSEMBLY No.SP301

ITEM	PART NUMBER	DESCRIPTION	No.OFF
1	2365	Fixed Table	1
2	2366	Sub - Table	1
3	2375	Table Insert	1
4		'Wedglock' Soc. Set Screw	4
5		Std. Stud	2
6		Std. Washer	2
7	5130	Handknob	2

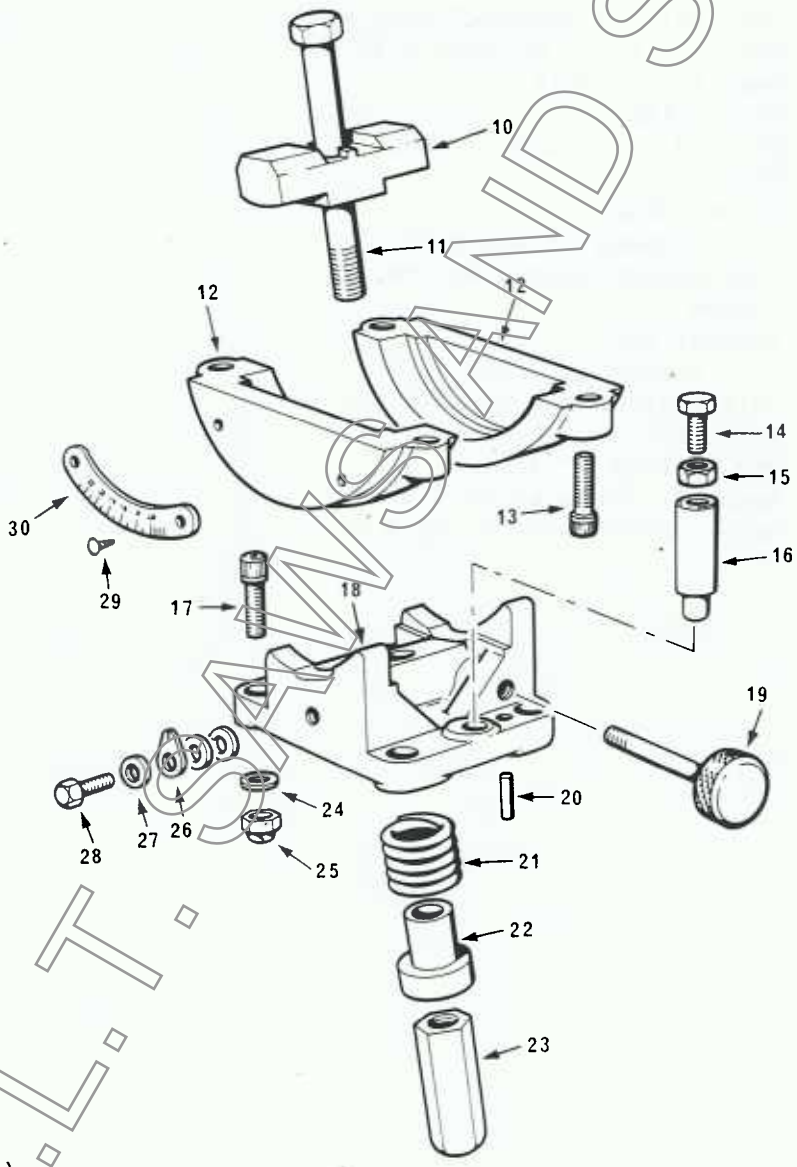
CRADLE (2-WAY TILT) - ASSEMBLY No.SP286

10	2369	Clamp	1
11		Hex. Hd. Screw	1
12	2368	Trunnion	2
13		Soc. Hd. Cap Screw	4
14		Hex. Hd. Screw	1
15		Hex. Nut	1
16	2373	Stop Pillar	1
17		Soc. Hd. Cap Screw	4
18	2367	Cradle	1
19	2500	Thumb Screw	1
20		Spring Dowel	1
21		Compression Spring	1
22	2370	Sleeve	1
23	2409	Special Nut	1
24		Std. Washer	4
25		Self Locking Nut	4
26	2372	Pointer	1
27		Std. Washer	3
28		Hex. Hd. Screw	1
29		Drive Screw	2
30	2371	Tilt Scale	1

SECTION 34



TABLE



CRADLE
(2-WAY TILT)

MOTOR PLATFORM & SUPPORT SHAFT - ASSEMBLY No.SM1000

ITEM	PART NUMBER AND DESCRIPTION		No.OFF
1	5474	Lever	1
2		Ball Knob	1
3	5404/1	Resilient Mounting Sleeve	2
4		Rubber Bush	2
5	5441	Pivot Shaft	1
6	5442	Eccentric Bush	1
7		Split Pin	1
8		Hex. Nut	1
9		Washer	1
10	5436	Trunnion Bracket	1
11	5443	Spacing Washer	1
12	5429	Tag Washer	1
13		Coach Bolt	1

MOTOR PLATFORM - ASSEMBLY No.SM1000/1

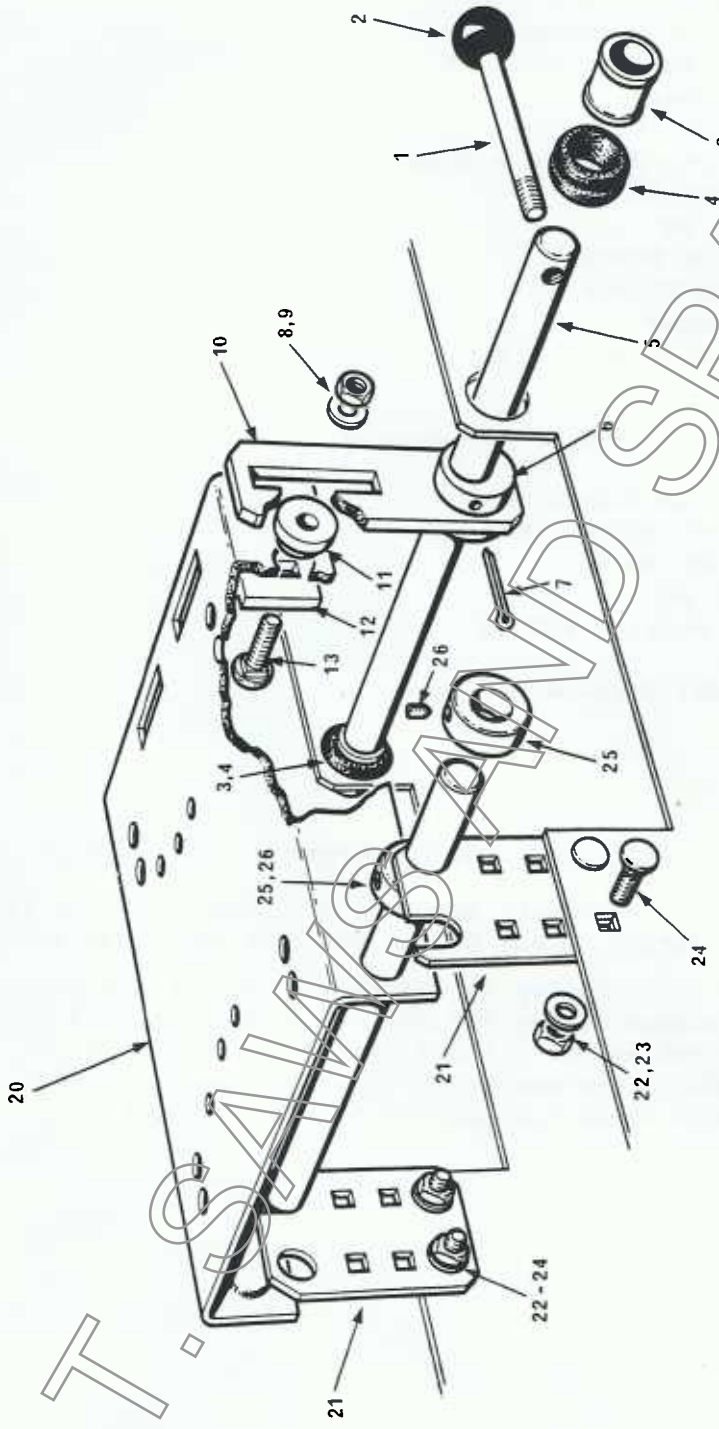
20	SM999	Motor Platform & Shaft	1
21	5435	Platform Support Bracket	2
22		Hex. Nut	4
23		Washer	4
24		Coach Bolt	4
25	5401/1	Collar	2
26		Soc. Set Screw	2

MOTOR PULLEY & VEE-BELTS - NOT ILLUSTRATED

NOTE : Main drive vee-belts may vary according to motor fitted.
When ordering, check No. on vee-belt and order accordingly

	'A' Section Pulley	1
	'A' Section Pulley	1
1229	Motor Pulley (S5 - 1 & 3 Phase)	1
	Main Drive Vee-Belt (S1 - 1 & 3 Phase)	1
	Main Drive Vee-Belt (S5 - 1 & 3 Phase)	1

SECTION 43



MOTOR PLATFORM & SUPPORT SHAFT

UPPER BLADE GUARD - ASSEMBLY No.SM1076

ITEM	PART NUMBER	DESCRIPTION	No.OFF
1	SM1078	Slide Cover	1
2	SM1077	Blade Guard	1
3		Std. Washer	1
4		Thumb Screw	1
5	2338	Thumb Screw	1
6	2453	Guard Bracket	1

INTERMEDIATE BLADE GUARD ASSEMBLY

NOTE : Used on 30" Throat Machines ONLY.

10	SP443	Intermediate Blade Guard	1
11	2711	Thumb Knob	3
12		Rd. Hd. Screw Recessed	3
13		Hex. Nut	3

LOWER BLADE GUARD - ASSEMBLY No.SM858

20	SM857	Blade Guard	1
21		Hex. Hd. Screw	2
22		Std. Washer	4
23	5035	Adjustable Guard	1
24		Wing Nut	2
25		Hex. Locknut	1

DOOR INTERLOCK - ASSEMBLY No.SM1130

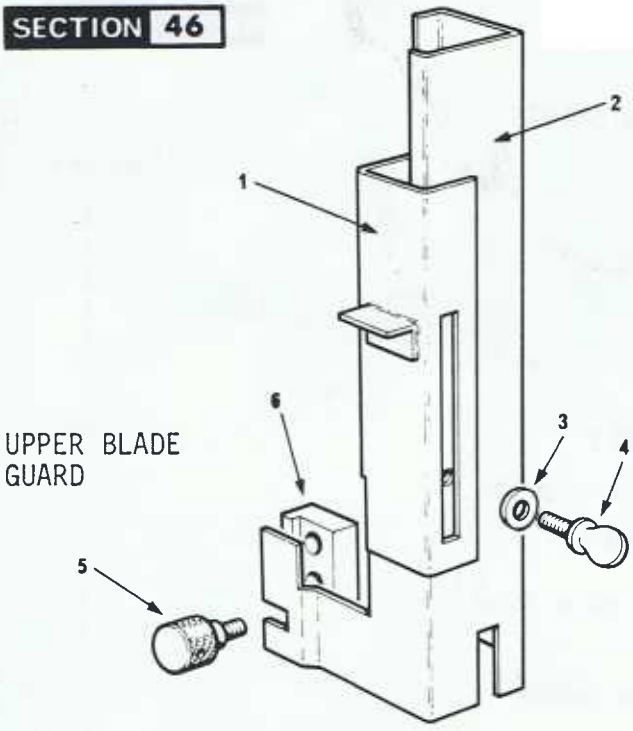
30	5701	Switch Mounting Plate	1
31		Hex. Nut	4
32		Hex. Hd. Screw	2
33	5703	Threaded Push Rod	1
34	5705	Interlock Mounting Plate	1
35		Hex. Nut	2
36		Compression Spring	1
37		Split Pin	1
38	5702	Switch Operating Plate	1
39	5704	Plain Push Rod	1
40		Ch. Hd. Screw	2
41		Micro Switch	1

WORKLIGHT - ASSEMBLY No.SM1003

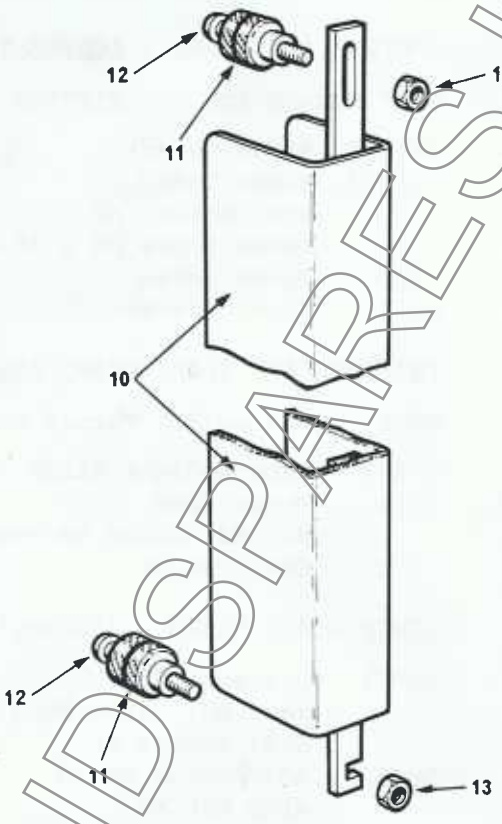
50	5463	Lamp Shade	1
51		Lamp	1
52	3601	Lens Mounting	1
53	3605	Lens	1
54		Lamp Holder	1
55		Hex. Hd. Screw	1
56		Washer	1

To remove lamp, press inwards, twist anti-clockwise and pull out.

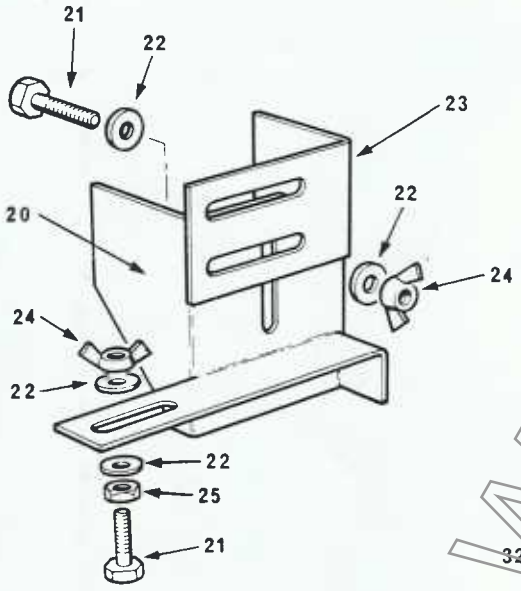
SECTION 46



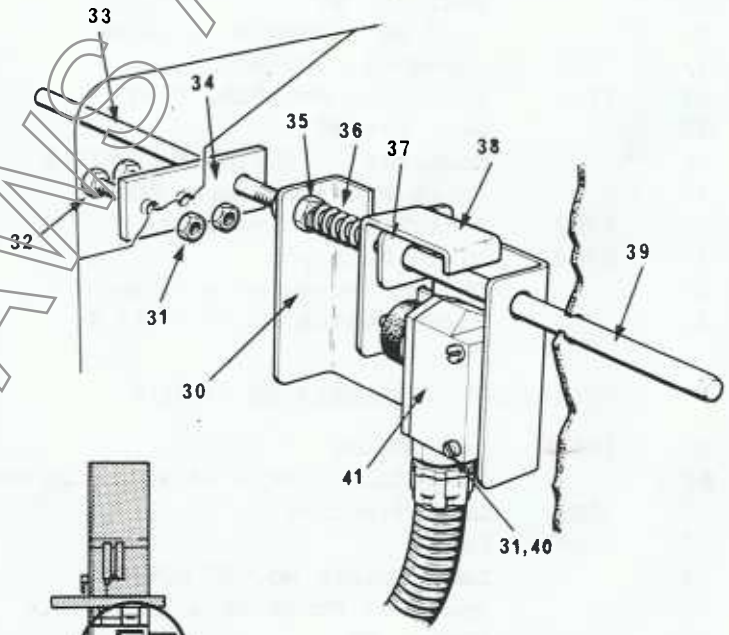
UPPER BLADE GUARD

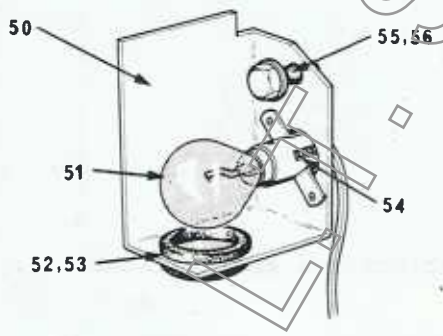


INTERMEDIATE BLADE GUARD

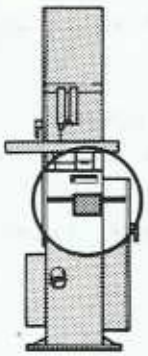


LOWER BLADE GUARD





WORKLIGHT



DOOR INTERLOCK