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®

BANDIT series

BANDSAWING MACHINES

HANDBOOK

5E

QUALITY BANDSAW BLADES

TO SUIT THE

BANDIT

12-S-1

12-S-5

12-S-10

MODELS

ORDER LINE- 01634 850833

A.L.T. SAWS & SPARES LTD

Unit 15, Pier Road Industrial Estate

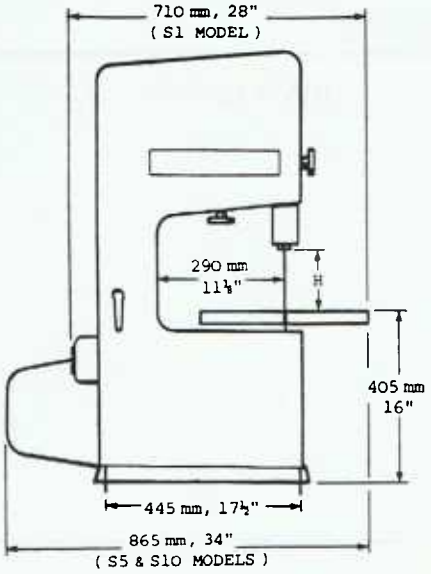
Gillingham

Kent

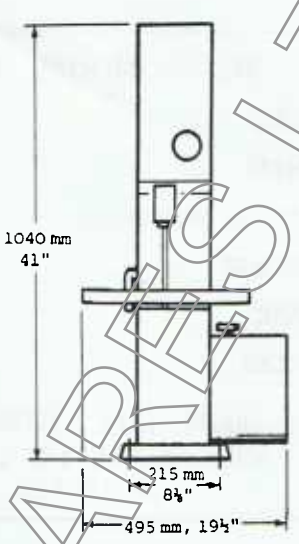
ME7 1RZ

www.altsawsandspares.com

ALL DIMENSIONS APPROXIMATE.



H = MAX. HEIGHT UNDER GUIDES :
S1 Model : 185 mm, 7¼"
S5 & S10 : 165 mm, 6½"
OVERALL WIDTH (DOORS OPEN) :
S1 Model : 790 mm, 31"
S5 & S10 : 1120 mm, 44"
HEIGHT OF MACHINE & CABINET BASE :
(All Models) : 1675 mm, 66"



FOUNDATION PLAN (DETAILS VART ACCORDING TO MODEL).

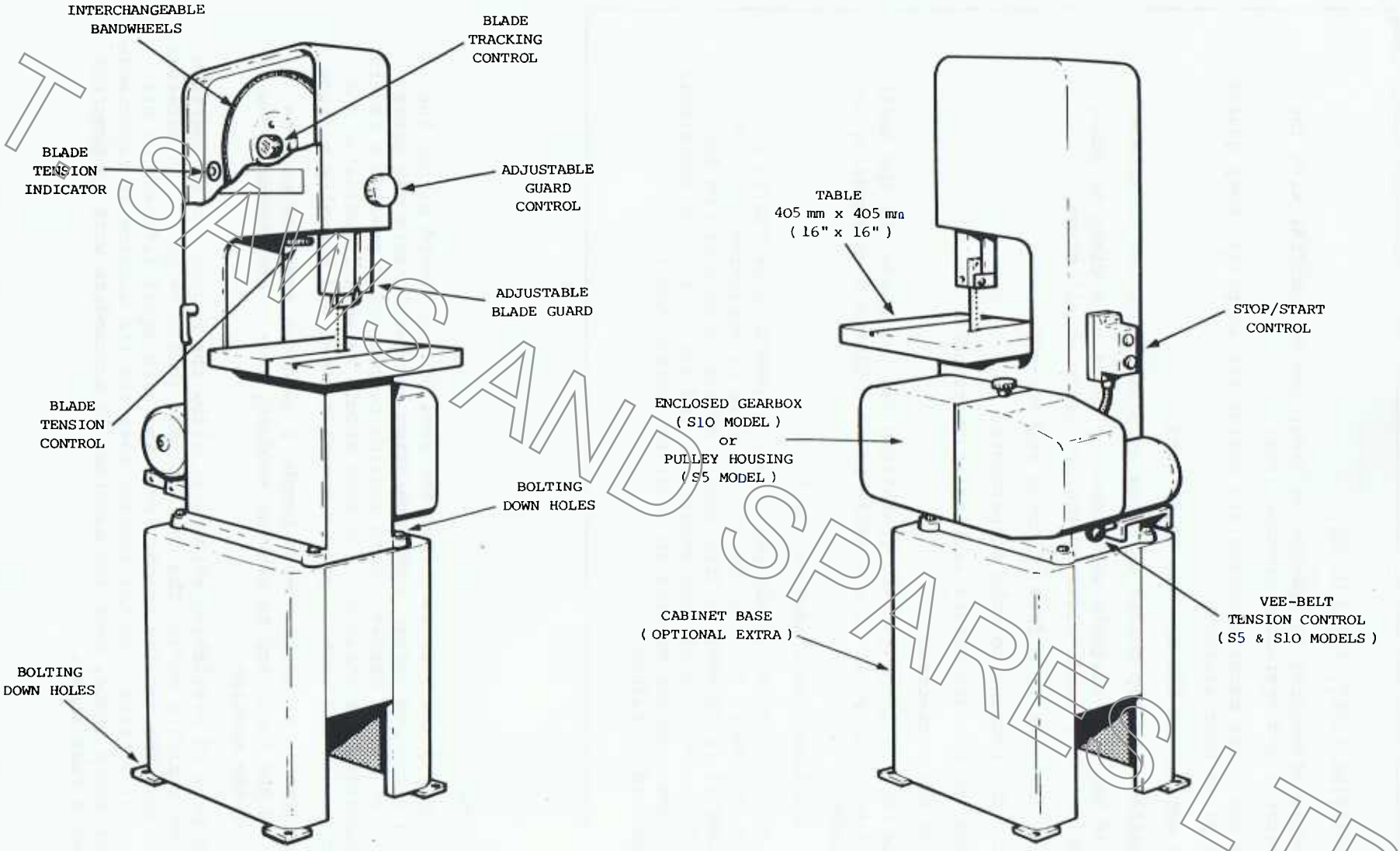
SPECIFICATION :

Model 12S1 Bandit	-	Single Speed Machine
Model 12S5 Bandit	-	Five Speed Machine
Model 12S10 Bandit	-	Ten Speed Machine
Motor	-	0.55 kW., ¾ h.p.,
Electric Supply	-	220/240 Volt 1 Phase 50Hz. 380/440 Volt 3 Phase 50Hz.
Max. Distributed Static Table Load	-	27 kg., 60 lbs.
Gross Weight	-	S1 Model : 93 kg., 205 lbs. S5 & S10 : 110 kg., 240 lbs.

FOR BEST RESULTS USE **A.L.T. Saws & Spares Ltd Band Saw Blades**

WHEN ORDERING PARTS, PLEASE STATE :-

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



GENERAL LAYOUT OF BANDIT SERIES BANDSAWING MACHINES.
(DETAILS VARY ACCORDING TO MODELS)

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.

Do not exceed the maximum table load.

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

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

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

Stop the machine to make adjustments.

Stop the machine before leaving it unattended.

Wear eye protection.

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

Do not leave saw blades on the floor.

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

INSTALLATION.

Adequate working space is essential for ease of use. Avoid siting the machine in a cramped corner where operation and maintenance 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.

If the machine is to be used on a bench, a generous aperture must be provided in the bench top to prevent sawdust, swarf, etc. accumulating in the base of the machine.

A cabinet base is available, which will allow the machine to be operated as a floor standing model. The cabinet base should be packed as necessary to ensure that the machine stands level and with equal firmness on all four corners. Bolting down the cabinet base and the machine is recommended. A bench or table space, near the machine, to accomodate work in progress will prove a real asset.

CONNECTION TO THE ELECTRICITY SUPPLY.

Single phase machines will operate on 220/240 volt 1 phase 50 Hz. supply.
Three phase machines will operate on 380/440 volt 3 phase 50 Hz. supply.

Before proceeding to connect machine up to the electricity supply, check that the motor is of a suitable rating.
Remove cover from starter body to gain access to terminal connections, and proceed as follows :-

SINGLE PHASE :
Connect mains supply leads to terminals at top of contactor. Brown lead to No.1, blue lead to No.5 and earth lead to earth connection provided.
Re-assemble starter.

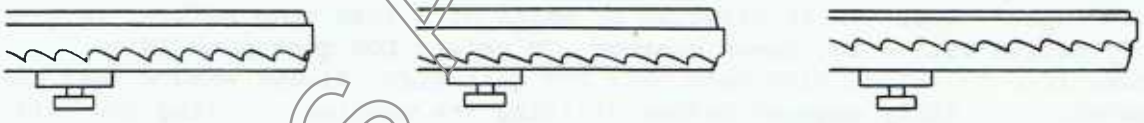
THREE PHASE :
Connect mains supply leads to terminal Nos.1,3 & 5 at top of contactor, and earth lead to earth connection provided. Check that motor rotates in the correct direction, ie. blade passes downward through the table, and reverse motor rotation if necessary, by interchanging any two supply leads.
Re-assemble starter.

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.

SETTING UP THE MACHINE.

Select a saw blade suitable for the work in hand, see pages 9 to 11.
Place the saw blade upon the bandwheels with the teeth facing forwards and downwards through the table. Apply sufficient tension to take up the slack of the saw blade. 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.1. It is important that the guide(s) are set back clear of the saw blade whilst this operation is being carried out in order that the blade is free to follow its natural path between the bandwheels.



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.1.

When the saw blade is tracking in a satisfactory manner, apply the appropriate blade tension as shown by the tension indicator, see Fig.2. The tension scale registers tension applied in terms of saw blade width, thus a reading of ½ indicates that tension to suit a ½" 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.

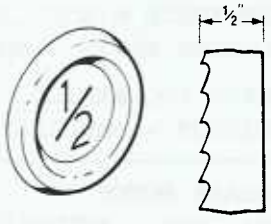
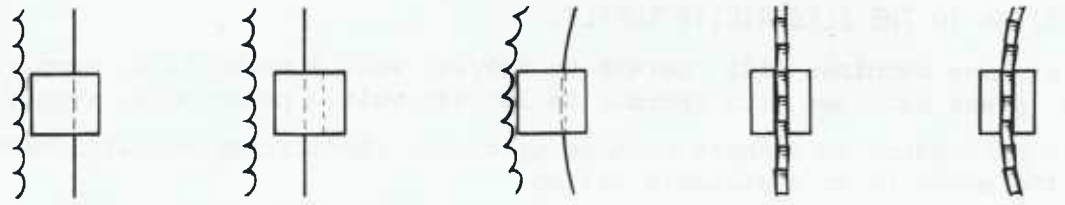


Fig.2.



CORRECT Maximum support for blade.

INCORRECT Insufficient support for blade.

INCORRECT Guide deflecting blade.

CORRECT Guide supporting blade.

INCORRECT Guide deflecting blade.

Fig.3.

It is important to understand that the purpose of the blade guides is to support the saw blade without deflection, see Fig.3. The correct guide inserts must be used for the size of saw blade in use (see page 22). The use of the correct size guide insert permits maximum engagement with the flanks of the saw blade without snagging the set of the teeth, see Fig.4. After adjusting the guides, rotate the bandwheels by hand to ensure that the saw blade runs free and that all the adjustments have been correctly carried out.

CORRECT INCORRECT INCORRECT

Fig.4.

BLADE SPEED (S5 & S10 MODELS).

Select blade speed to suit the job, see Speed Selection Charts on pages 8 & 9. Operation of the vee-belt tension control releases the tension on the vee-belt, which enables a higher or lower speed to be selected.

S5 MODEL :
Blade speed variation is effected by means of a five step pulley. Select speed change while motor is stopped.

S10 MODEL :
Blade speed variation is effected by means of a five step pulley, in conjunction with a two speed gearbox. To select LOW gear push IN gearshift. To select HIGH gear pull OUT gearshift. Always ensure that the gearshift is fully engaged before starting the machine. Turning the belt pulley by hand will help gears engage.
IMPORTANT : THE GEARSHIFT MUST NOT BE OPERATED WHEN THE MOTOR IS RUNNING.

MAINTENANCE	BP	ESSO	SHELL
LUBRICATE MISCELLANEOUS WORKING PARTS - MONTHLY DRAIN AND REFILL GEARBOX - ANNUALLY	ENERGOL HP20	ESSTIC 50	VITREA 33
GREASE MOTOR BEARINGS - ANNUALLY.	ENERGREASE LS3	BEACON 3	ALVANIA 3
NOTE : THE BANDWHEELS ARE MOUNTED ON SEALED - FOR - LIFE BEARINGS WHICH DO NOT REQUIRE FURTHER LUBRICATION.			

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.
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.
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.

SAW AND SPEED SELECTION CHART.

MATERIAL THICKNESS	¼" - ½"		½" - 1"		1" - 2"	
MATERIAL	TPI	FPM	TPI	FPM	TPI	FPM
ALUMINIUM ALLOY	14 - 10	1700	10 - 8	1500	8 - 6	1350
ALUMINIUM - Cast	14 - 10	900	10 - 8	800	8 - 6	700
ALUMINIUM - Rolled	14 - 10	2700	10 - 8	2400	8 - 6	2100
ASBESTOS	14 - 10	2100	10 - 8	2100	8 - 6	2100
BABBIT METAL	14 - 10	1700	10 - 8	1500	8 - 6	1350
BAKELITE	14 - 10	3400	10 - 8	3400	8 - 6	3000
BERYLLIUM	24 - 18	100	18 - 14	90	14 - 10	80
BRAKE LINING	14 - 10	220	10 - 8	200	8 - 6	180
BRASS - Cast	18 - 14	60	14 - 10	55	10 - 8	55
BRASS - Hard	18 - 14	340	14 - 10	300	10 - 8	260
BRASS - Soft	14 - 10	1500	10 - 8	1300	8 - 6	1200
BRONZE - Aluminium	24 - 18	330	18 - 14	330	14 - 10	300
BRONZE - Manganese	18 - 14	165	14 - 10	145	10 - 8	130
BRONZE - Phosphor	14 - 10	200	8 - 6	175	6 - 3S	155
CARBON	14 - 10	3600	10 - 8	3600	8 - 6	3600
CELLOTEX	14 - 10	3500	10 - 8	3500	8 - 6	3500
CELLULOID	14 - 10	1200	10 - 8	1100	8 - 6	1000
COPPER - Hard	18 - 14	750	14 - 10	650	10 - 8	580
COPPER - Soft	18 - 14	3000	14 - 10	2700	10 - 8	2400
DURAL	18 - 14	1350	14 - 10	1200	10 - 8	1100
DURALOY	18 - 14	90	14 - 10	80	10 - 8	70
FIBRE BOARD	18 - 14	1200	14 - 10	1100	10 - 8	1000
FIBRE GLASS	24 - 18	1100	18 - 14	1000	14 - 10	900
FORMICA	18 - 14	3000	14 - 10	2900	10 - 8	2600
FRONTIER METAL	14 - 10	760	10 - 8	690	8 - 6	600
GRAPHITE	24 - 18	2800	18 - 14	2800	14 - 10	2800
IRON - Cast	18 - 14	140	14 - 10	125	10 - 8	110
IRON - Malleable	18 - 14	180	14 - 10	160	10 - 8	140
IRON - Meehanite	18 - 14	115	14 - 10	100	10 - 8	90
IRON - Nickel	18 - 14	100	14 - 10	85	10 - 8	80
KARMOT	14 - 10	2200	10 - 8	2000	8 - 6	1800
LEAD	14 - 10	2000	10 - 8	1800	8 - 6	1600
MAGNESIUM	18 - 14	3200	14 - 10	3200	10 - 8	2700
MICA	18 - 14	230	14 - 10	200	10 - 8	180
MONEL METAL	24 - 18	60	18 - 14	55	14 - 10	50
NEOPRENE	14 - 10	3600	10 - 8	3400	8 - 6	2600
NICKEL SILVER	18 - 14	210	14 - 10	190	10 - 8	170
PAPER	24 - 18	2500	18 - 14	2500	14 - 10	2200
PERSPEX	14 - 10	3200	10 - 8	3000	8 - 6	2700
PLEXIGLASS	14 - 10	3200	10 - 8	3000	8 - 6	2700
POLYSTYRENE	14 - 10	2000	8 - 6	1750	6 - 3S	1600
RUBBER - Crepe	14 - 10	3500	8 - 6	3500	6 - 3S	3000
RUBBER - Hard	14 - 10	3000	8 - 6	2600	6 - 3S	2600
SILVER ALLOY	14 - 10	2500	10 - 8	2200	8 - 6	2000
SLATE	14 - 10	650	8 - 6	540	6 - 3S	500
STEEL - Armour Plate	18 - 14	100	14 - 10	90	10 - 8	80
STEEL - Manganese	18 - 14	115	14 - 10	100	10 - 8	90
STEEL - Mild	14 - 10	190	10 - 8	180	8 - 6	160
STEEL - Molybdenum	18 - 14	85	14 - 10	75	10 - 8	70

TPI = Teeth Per Inch FPM = Feet Per Minute S = Skip Tooth

SAW AND SPEED SELECTION CHART.						
MATERIAL THICKNESS	¼" - ½"		½" - 1"		1" - 2"	
MATERIAL	TPI	FPM	TPI	FPM	TPI	FPM
STEEL - Nickel	18 - 14	85	14 - 10	75	10 - 8	70
STEEL - Nickel Chrome	24 - 18	80	18 - 14	70	14 - 10	60
STEEL - Rolled	18 - 14	160	14 - 10	145	10 - 8	130
STEEL - Stainless	18 - 14	60	14 - 10	55	10 - 8	50
STEEL - Tool	18 - 14	70	14 - 10	60	10 - 8	55
TUFNOL	14 - 10	1900	10 - 8	1700	8 - 6	1500
ZINC	14 - 10	1900	8 - 6	1700	6 - 3S	1500
TPI = Teeth Per Inch FPM = Feet Per Minute S = Skip Tooth						

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.

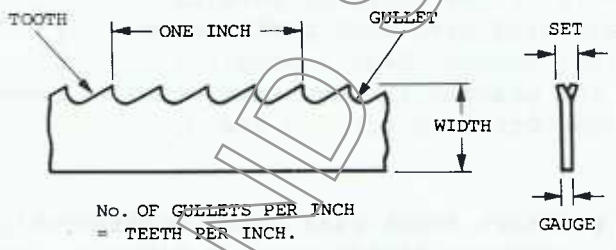


Fig.5 : Saw Blade Terminology.

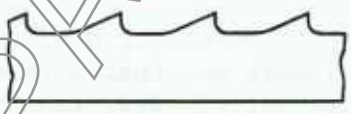
TOOTH PITCH is important if optimum blade performance is to be obtained. Tooth pitch is determined mainly on the basis of material thickness and to some extent on materail hardness. For a given material thickness, a tough or abrasive material will require more teeth in engagement than a soft ductile 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. The heat generated by friction due to this rubbing action will cause the cutting edges to break down. It is a common error, especially where work hardening materials are concerned, to increase feed pressure so as to make the saw teeth bite under these conditions. This practice will produce a ragged inaccurate cut and rapidly destroy the saw blade. Where there are insufficient teeth in engagement however, they can penetrate the material too quickly to produce a well formed chip. The stubby chip so produced leaves an inclined face where it breaks away from the cutting face and so causes the succeeding tooth to bounce. When this condition is reached, the uneven penetration of the teeth set up periodic vibrations in the form of saw blade chatter. Persistant sawing under these conditions can dull the teeth by impact and in extreme cases, cause the tips of the teeth to break away. The chip produced by each tooth remains trapped in the gullet until it emerges from the underside of the workpiece,

therefore as the material thickness increases, the gullet must accommodate a larger chip. Considerable heat is generated if the chip is compressed into insufficient gullet space and with ductile materials, such chips tend to become welded to the teeth resulting in seizure or breakage of the saw blade.

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

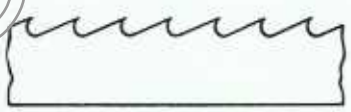
REGULAR TOOTH saw blades are the most common in use because the zero front rake and well rounded gullet present a robust tooth with good shock resistance and work penetration properties. It will produce accurate fine-finish work in steel and most medium hard materials, but tend to clog when used on soft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

REGULAR TOOTH



SKIP TOOTH

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 saw 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 plastic are possible with this type of saw blade. Standard pitches are 3, 4 & 6 teeth per inch.



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 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

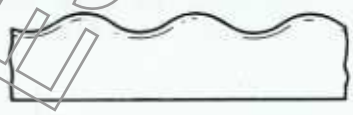
WAVY SET saw blades have the teeth alternately to the left and right in groups or waves. With this formation of tooth set, relatively few teeth are cutting at the side of the kerf and therefore there is some tendency for the saw blade to jam when sawing abrasive materials.

WAVY SET

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.
Most plastics can be sawn with a metal cutting saw blade. Very little difficulty should be experienced in sawing thermosetting materials, although some have an abrasive nature which shortens the life of a saw blade.

KNIFE EDGE BAND

SCALLOPED EDGE BAND



WAVY EDGE BAND

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 the widest possible saw blade that will negotiate the curve should be used. 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.

SAW BLADE WIDTH	1/8"	3/16"	1/4"	3/8"	1/2"
GUIDE INSERT PART No.	4146	4147	4148	4149	4150
MINIMUM SAWING RADIUS	5/16"	5/8"	1"	1½"	2½"

PROTRACTOR.

Fig.6 shows the protractor assembly (Part No.SP153) in use on the machine. Once set up it ensures accurate cross -cuts.

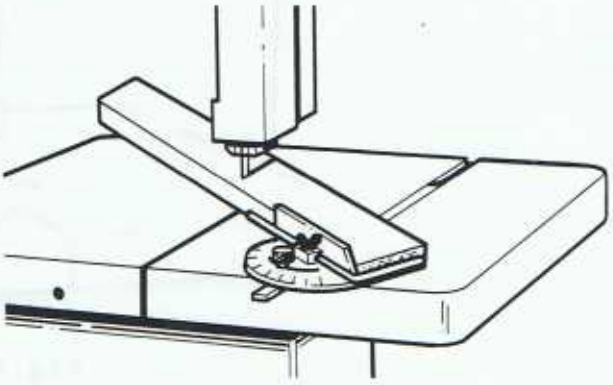


Fig.6.

OPTIONAL EXTRA EQUIPMENT :

RIP FENCE.

Fig. 7 shows the rip fence kit (Part No. PK39) in use on the machine. It is a very useful accessory which widens the scope of the machine considerably, as apart from straightforward ripping it makes possible the production of tenons of consistent thickness. When cutting several tenons of the same thickness, set the fence, 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.

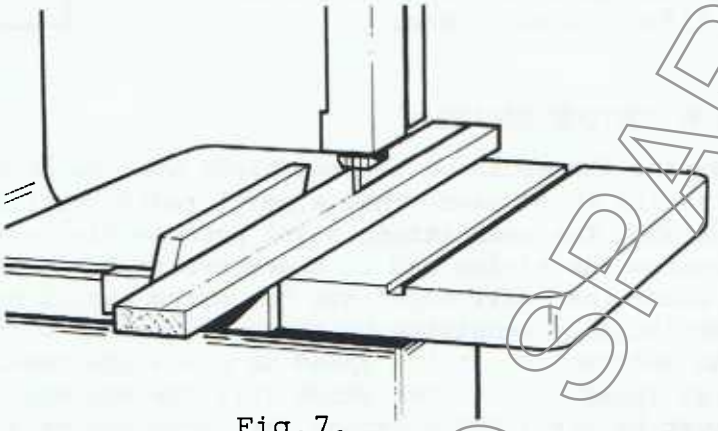


Fig.7.

CIRCLE CUTTING ATTACHMENT.

Fig. 8 shows the circle cutting attachment (Part No. SP260) in use on the machine. Repetition cutting of circular blanks is rendered easy by using a circle cutting attachment. The attachment is essentially a robust bar bolted to the guide post, which carries an adjustable pin which must be set so that the saw blade lies tangential to the circle or blade wander will prevent an accurate cut being made. The whole unit is raised and lowered on the guide post when feeding blanks, thus avoiding disturbing the setting of the pin. The blanks should be made in the shape of a square with a length of side just a little larger than the diameter of the proposed circle.

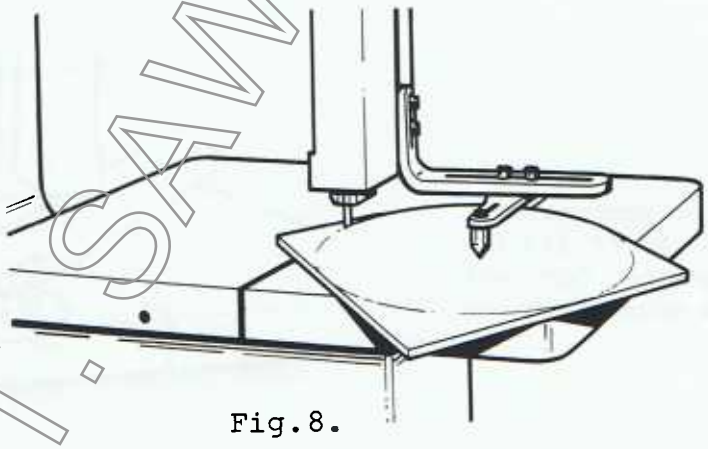
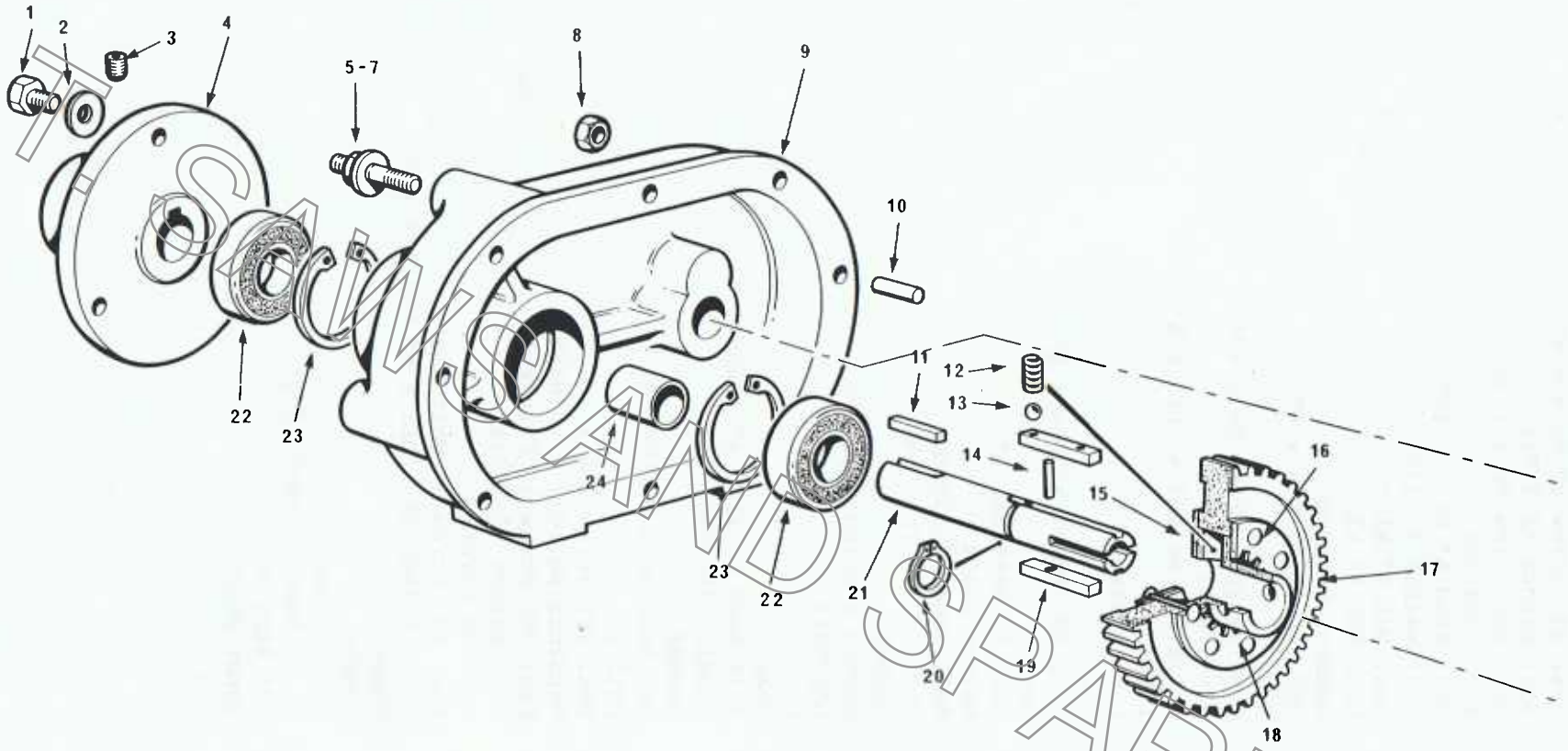


Fig.8.

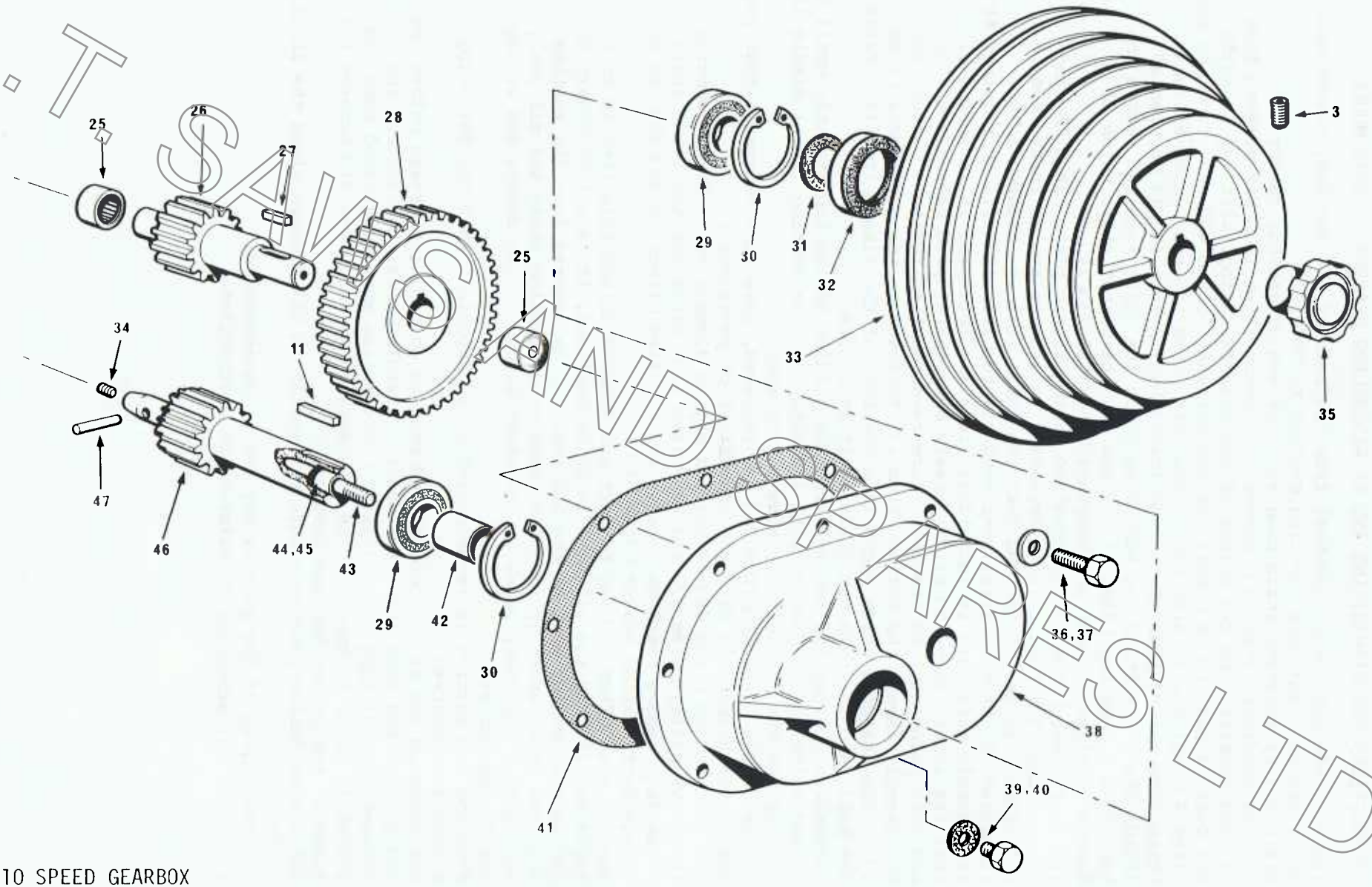
For further details of Optional Extra Equipment see pages 25 & 26.

10 SPEED GEARBOX - PART No.SP681 - 12S10 MODEL

ITEM	PART NUMBER	AND DESCRIPTION	No.OFF
1		Hex. Hd. Screw	3
2		Std. Washer	3
3		Soc. Set Screw	2
4	2561	Bandwheel Hub	1
5		Std. Stud	3
6		Std. Washer	3
7		Hex. Nut	3
8		Hex. Nut	6
9	4172	Gearbox Housing	1
10		Std. Dowel	2
11	1148	Key	2
12		Compression Spring	1
13		Steel Ball	1
14		Mills Pin	1
15	1036	Liner	1
16	1035	Clutch Plate	1
17	1044	Gear	1
18		Snap Hd. Rivet	8
19	1027	Key	2
20		Circlip External	1
21	1029	Output Shaft	1
22		Ball Race	2
23		Circlip Internal	2
24	1030	Spacer	1
25		Needle Bearing	2
26	3253	Layshaft	1
27	1147	Key	1
28	3252	Gear	1
29		Ball Race	2
30		Circlip Internal	2
31	1209	Washer	1
32		Oil Seal	1
33	1228	Pulley	1
34		Soc. Set Screw	1
35		Handknob	1
36		Hex. Hd. Screw	6
37		Std. Washer	6
38	4173	Gearbox Cover	1
39		Hex. Hd. Screw	2
40		Fibre Washer	2
41	4223	Gasket	1
42	1031	Spacer	1
43	1037	Control Rod	1
44		Compo Bush	1
45		'O' Ring	1
46	1032	Input Shaft	1
47	1024	Pin	1



10 SPEED GEARBOX



10 SPEED GEARBOX

INSTRUCTIONS FOR DISMANTLING AND RE-ASSEMBLING GEARBOX - 12S10 MODEL.

Remove blade and lower bandwheel from the rear of the machine, remove main drive vee-belt and nuts securing gearbox to body.
Drain oil by removing drain plug at lower end of gearbox casing.
Unscrew handknob (Item 35). Remove two dowels (Item 10), six screws (Item 36) and separate the two halves of the gearbox casing. Lift out layshaft and gear (Items 26 & 28). Pull the control shaft (Item 43) away from the box (Item 9), which will also remove the gear (Item 17) and clutch assembly. (Take care not to lose the spring loaded ball (Items 12 & 13) concealed inside the hub.) Stand the box (Item 9) on its joint face and remove the hub (Item 4) and key (Item 11). Press out the output shaft (Item 21). Remove circlips, spacer and bearings (Items 22,23 & 24).
The shift gear (Item 17) is rivetted to the clutch plate (Item 16) and liner (Item 15). Should it be necessary to replace any of these items, (15,16 & 17) it is recommended that the three items be ordered as pre-assembled. Eight mild steel snap head rivets (Item 18) will be required to re-assemble this unit if individual items are replaced. It is essential that the liner (Item 15) slides freely over the dimpled keys (Item 19), and this point must be checked before re-assembling further. Before final re-assembly insert the spring (Item 12) followed by the steel ball (Item 13) into the hole which opens into the bore of the liner (Item 15). Press the ball into the hole and slide shaft into bore.
Centralize the control rod and continue sliding on the hub assembly until a second click is heard which will indicate that the seating in the dimple in the key and the hub is fully home on the shaft.
If the needle bearings (Item 25) are replaced, take care to ensure that the end of the bearing is slightly underflush on re-assembly.
The lid section (Item 38) of the box may be dismantled by first removing the drive pulley (Item 33) and key (Item 11). Press out the input shaft (Item 46). Remove bearings, spacer and circlips (Items 29,30 & 42). Do not damage cork sealing washer (Item 31).
The oil seal (Item 32) may be left undisturbed unless this item is to be replaced. If only the oil seal is to be replaced, it is not necessary to remove the bearing etc. as the old seal may be levered from its seating with the input shaft in position. When re-assembling shaft and oil seal, ensure that the sharp edges of the shaft keyway do not damage the wiping lip of the oil seal.
When the lid section is re-assembled it is important that the following points are observed :-
The threaded end of the control rod must be coated with grease before the rod is inserted into the input shaft. Carefully press the control rod through the 'O' ring seal (Item 45). The pulley must be pressed home and locked in order to compress the cork sealing washer (Item 31) between the faces of the pulley hub and bearing.
Failure to follow this procedure may result in oil leakage along the input shaft.
The two halves of the gearbox may now be re-assembled.
Fill with oil according to maintenance instructions.

FIVE SPEED PULLEY HOUSING ASSEMBLY - PART No.SP158C

(12S5 MODEL ONLY)

ITEM	PART NUMBER AND DESCRIPTION		No.OFF
60		Soc. Set Screw	2
61	1149	Key	2
62	2541	Housing	1
63	1228	Pulley	1
64	2542	Shaft	1
65		Ball Race	2
66		Circlip Internal	2
67	2561	Bandwheel Hub	1
68		Washer	3
69		Hex. Hd. Screw	3

NOT ILLUSTRATED :

	1229	Motor Pulley (12S5 & 12S10 MODELS)	1
	499	Bandwheel Hub (12S1 MODEL ONLY)	1
	1150	Key	1

TRACKING BANDWHEEL HUB ASSEMBLY - PART No.SM284

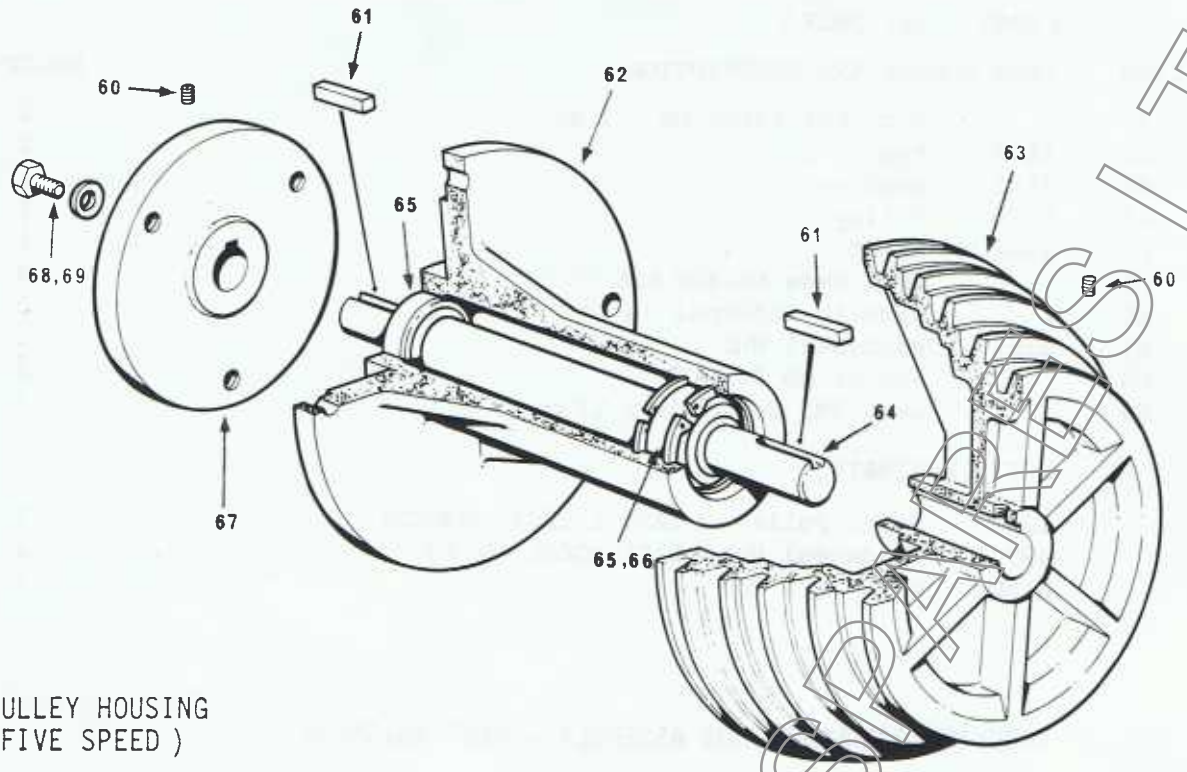
NOTE : REPLACES SP284. FITTED TO ALL MACHINES FROM 56399 ONWARDS, IDENTIFIED BY 'GROOVED RING' ON BANDWHEEL HUB.

80	5115	Hub	1
81		Circlip Internal	2
82		Ball Race	2
83	5116	Spacer	1
84	5117	Jacking Screw	1
85	5114	Spindle	1
86	5118	Control Knob	1
87	1102	Bandwheel	2
88		Washer	3
89		Hex. Hd. Screw	3
90	2466	Instruction Label	1
91		Soc. Set Screw	2

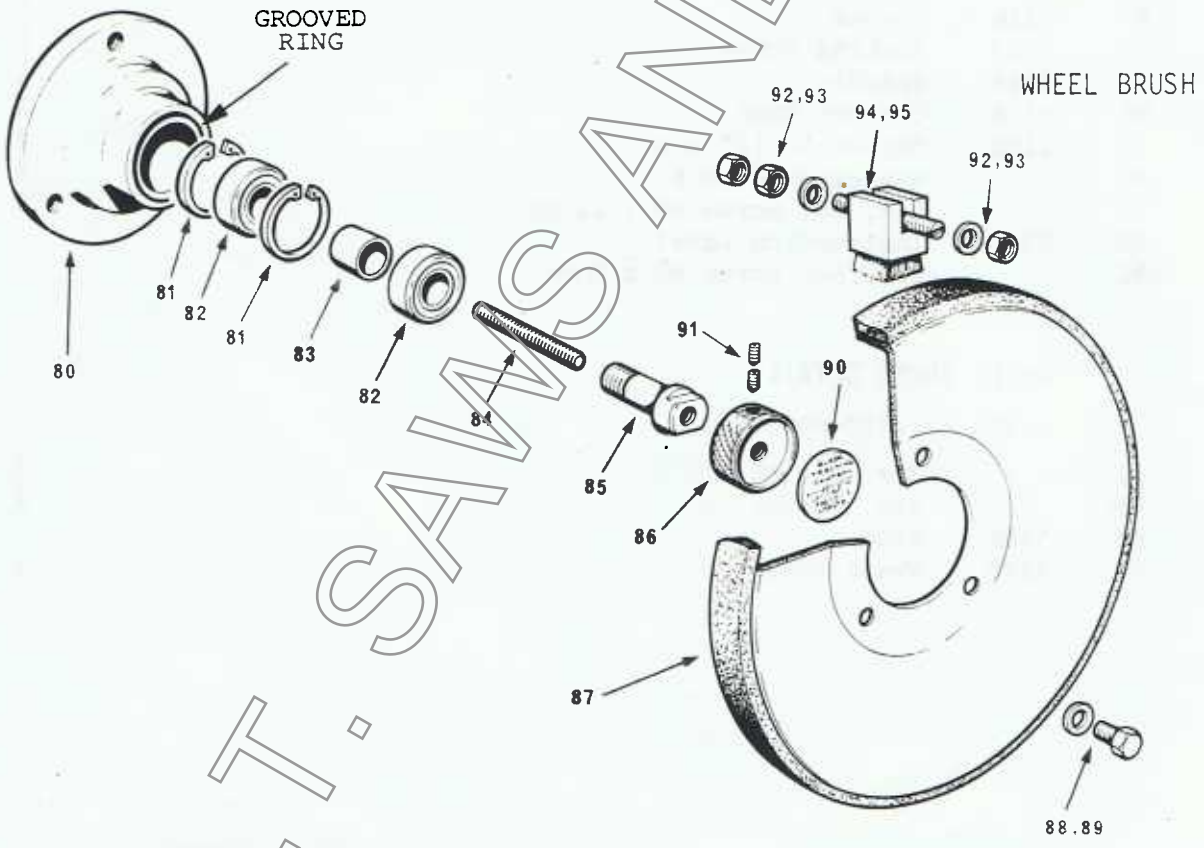
WHEEL BRUSH DETAILS

(12S5 & 12S10 MODELS)

92		Hex. Nut	3
93		Std. Washer	2
94	5485	Stud	1
95	2270	Wheel Brush	1



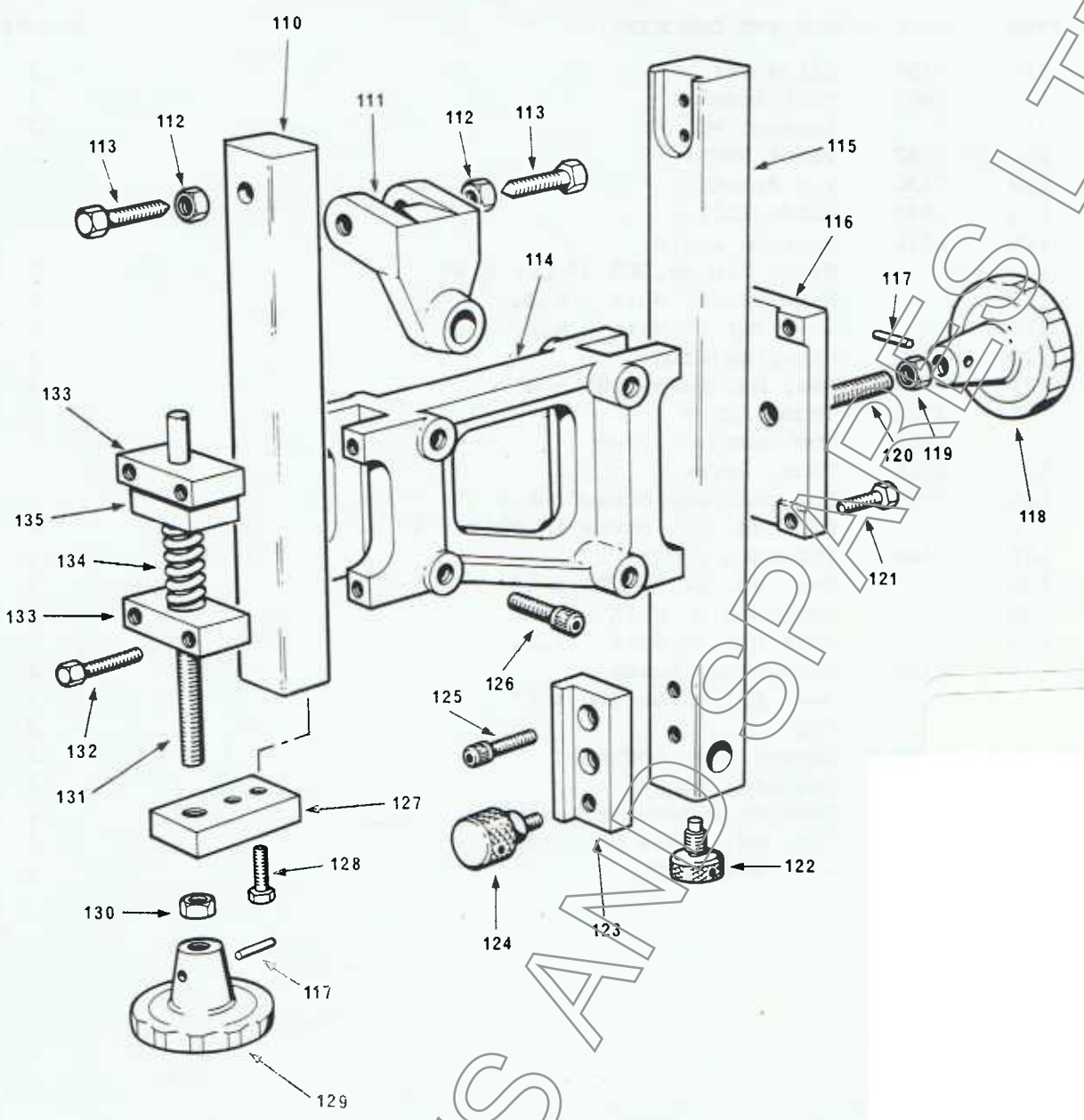
PULLEY HOUSING
(FIVE SPEED)



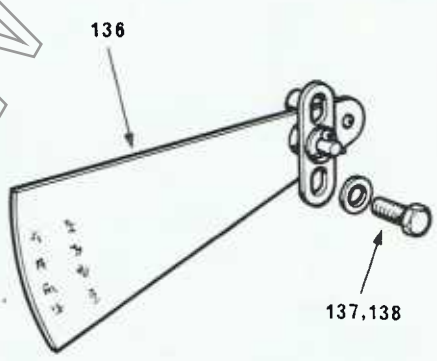
TRACKING BANDWHEEL HUB

TOP BRACKET ASSEMBLY - PART No.SP283A

ITEM	PART NUMBER	AND DESCRIPTION	No.OFF
110	2454	Slide Bar	1
111	5681	Tilt Bracket	1
112		Locknut	2
113	5682	Pivot Screw	2
114	2330	Top Bracket	1
115	2343	Guide Pillar	1
116	2331	Capping Plate	1
117		Mills Pin	2
118		Handknob	1
119		Lock Nut	1
120	2339	Clamping Stud	1
121		Hex. Hd. Screw	4
122	2501	Thumb Screw	1
123	2453	Top Guard Bracket	1
124	2338	Thumb Screw	1
125		Soc. Hd. Cap	2
126		Soc. Hd. Cap	4
127	2345	Threaded Block	1
128		Hex. Hd. Screw	2
129		Handknob	1
130		Lock Nut	1
131	2340	Tensioning Screw	1
132		Hex. Hd. Screw	4
133	2337	Cap	2
134	2490	Compression Spring	1
135	2341	Register Block	1
136	SM963	Tension Indicator Assembly	1
137		Hex. Hd. Screw	2
138		Std. Washer	2



TOP BRACKET



TENSION INDICATOR

TABLE ASSEMBLY - PART No.SP296

ITEM	PART NUMBER AND DESCRIPTION		No.OFF
150	2398A Table Section - R.H.		1
151	2398B Table Section - L.H.		1
152	2491 Table Insert		1
153	Stud	(12S1 MODEL ONLY)	4
153	Stud	(12S5 & 12S10 MODELS)	4
154	Std.Nut		8
155	Std.Washer		8
	NOT ILLUSTRATED :		
	Soc.Cap Screw		2

PROTRACTOR - PART No.SP153

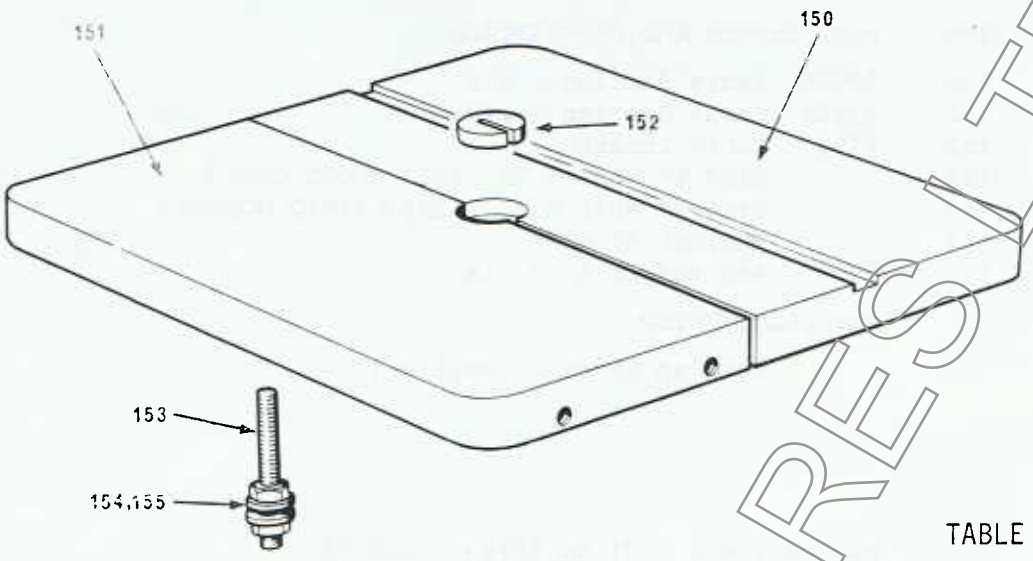
160	211	Guide Strip	1
161	126	Thumb Screw	1
162	212	End Stop	1
163	6234	Thumb Screw	1
165		Protractor	1

MOTOR PLATFORM ASSEMBLY - PART No.SP623 - 12S5 & 12S10 MODELS.

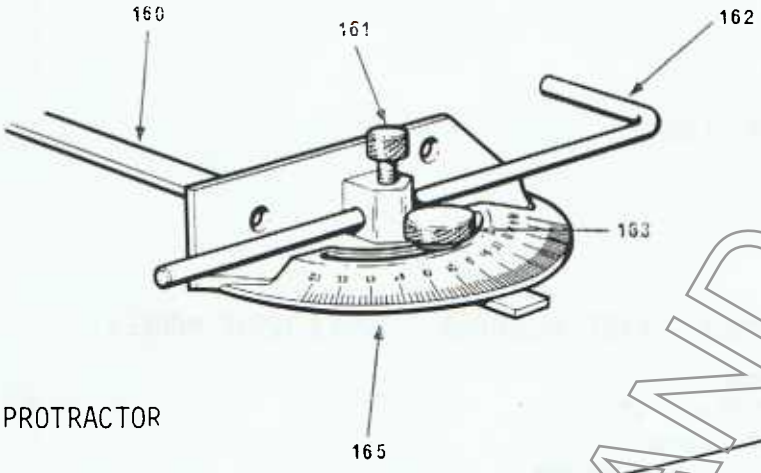
170	4126	Motor Platform	1
171		Split Pin	2
172		Std.Washer	4
173		Tension Spring	1
174	4129	Stop Pin	1
175		Ball Knob	1
176	4128	Pivot Shaft	1
177	4130	Platform Bracket	1
178	4125	Clamp Plate	1
179		Std.Washer	3
180		Hex.Hd.Screw	2
181		Split Pin	3

NOT ILLUSTRATED : - 12S5 & 12S10 MODELS.

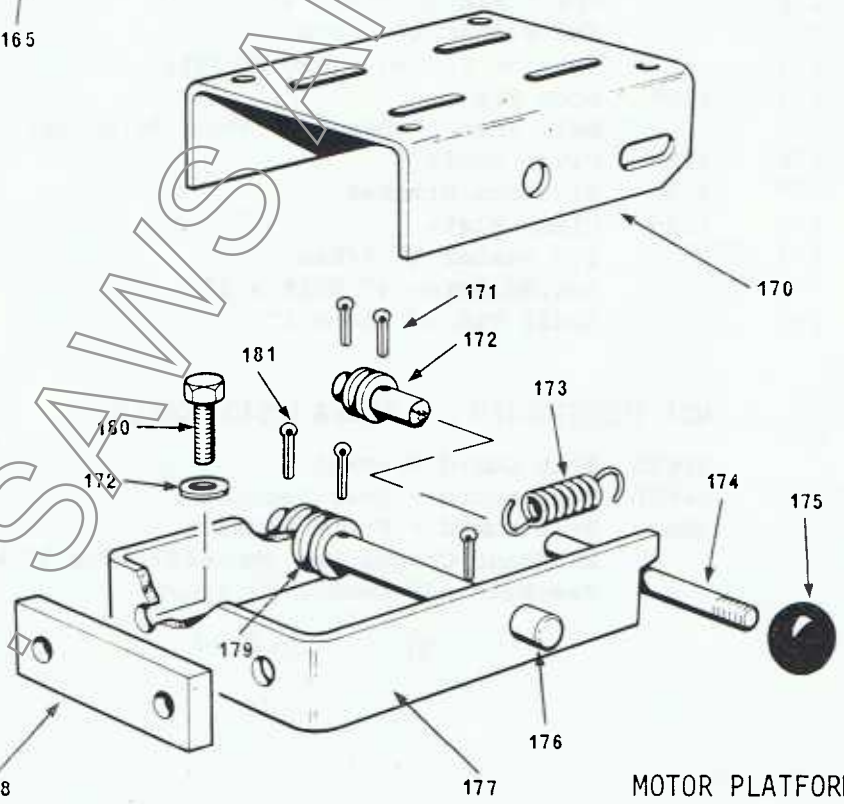
SP625	Belt Guard Bracket	1
SP626	Belt Guard - Rear Section	1
SP627	Belt Guard - Front Section	1
	Handknob	1
	Vee-Belt	1



TABLE



PROTRACTOR



MOTOR PLATFORM

UPPER BLADE GUIDE HOLDER - PART No.SP624

ITEM	PART NUMBER AND DESCRIPTION		No.OFF
200		Soc.Cap Screw	2
201	4157	Insert Locator	1
202		Drive Screw	1
203	4158	Stem	1
204	4156	Guide Arm	1
205	4154	Spigot	1
206		Soc.Cap Screw	1

LOWER BLADE GUIDE HOLDER - PART No.SP660 - 12S5 & 12S10 MODELS.

210	SP655	Lower Guide Bracket	1
211	4162	Clamp Plate	1
212		Hex.Hd.Screw	2
213	4127	Guide Insert Holder	1
214		Drive Screw	1
215	4157	Insert Locator	1
216		Soc.Cap Screw	2

GUIDE INSERTS

NOTE : Guide inserts NOT included in SP624 & SP660 - Order as required
Quantities : 1 Set per 12S1 Model.
2 Sets per 12S5 & 12S10 Models.

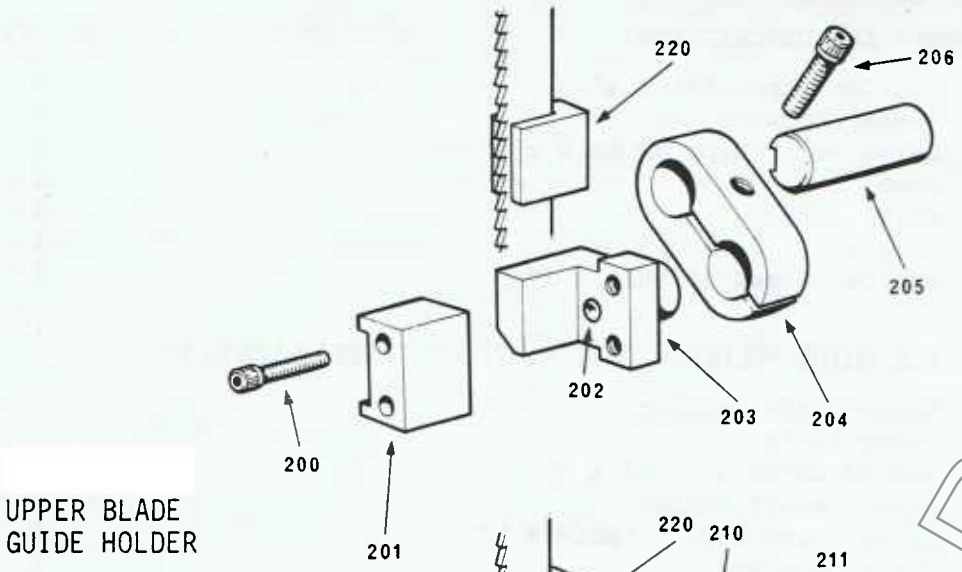
220	4146	Guide Inserts for $\frac{1}{8}$" Blade Width
	4147	" " " $\frac{3}{16}$" " "
	4148	" " " $\frac{1}{4}$" " "
	4149	" " " $\frac{3}{8}$" " "
	4150	" " " $\frac{1}{2}$" " "

LOWER BLADE GUARD - PART No.SM887

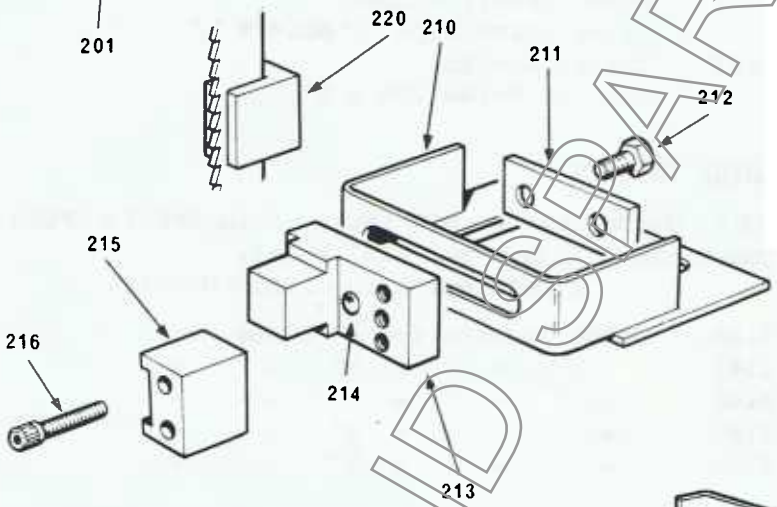
230	SM884	Clamp Plate	1
231	5102	Channel	1
232		Washer	3
233		Wingnut	1
234	5101	Spacer	1
235		Hex.Nut	1
236	5103	Arm	1
237		Hex.Hd.Screw	1

UPPER BLADE GUARD - PART No.SM1076

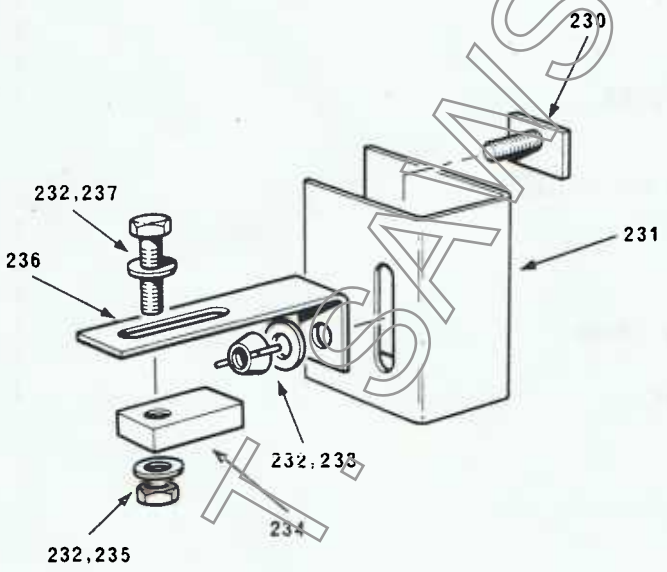
250	SM1078	Slide Cover	1
251	SM1077	Blade Guard	1
252		Std. Washer	1
253		Thumb Screw	1
254	2338	Thumb Screw	1
255	2453	Top Guard Bracket	1



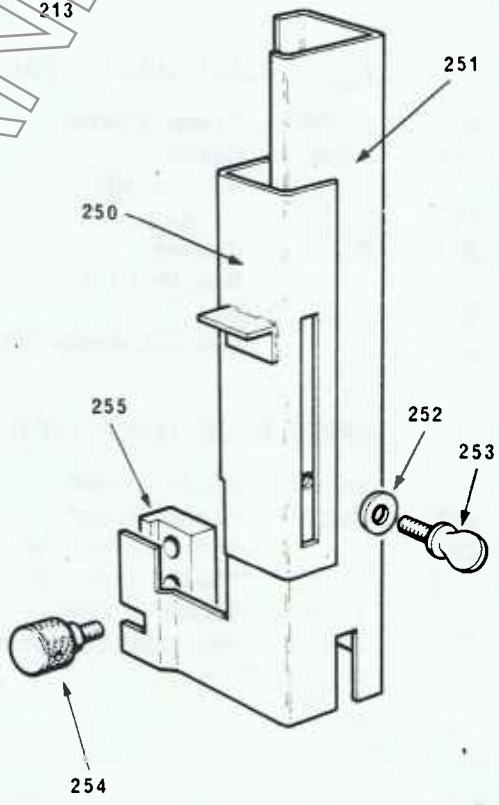
UPPER BLADE
GUIDE HOLDER



LOWER BLADE
GUIDE HOLDER



LOWER BLADE GUARD



UPPER BLADE GUARD

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

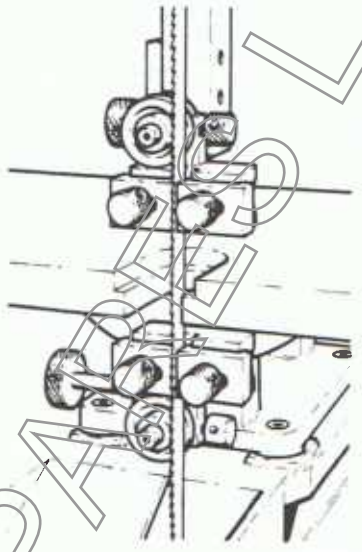
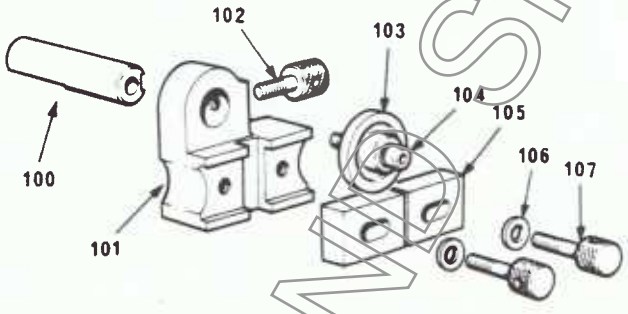
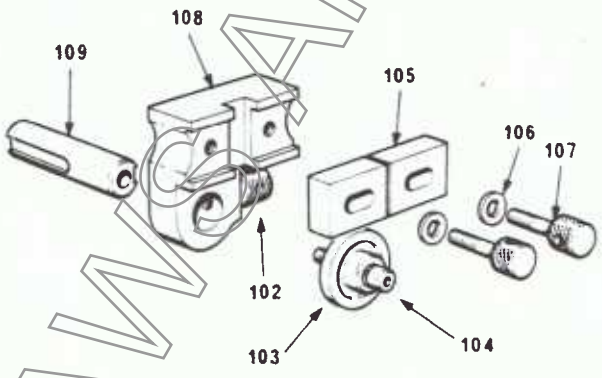


Fig.13.

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	AND 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

OPTIONAL EXTRAS & ACCESSORIES

RIP FENCE - PART No.PK39

ITEM	PART NUMBER	DESCRIPTION	No.OFF
270	2504	Fence	1
271		Soc. Hd. Cap Screw	3
272	2505	Fence Bracket	1
273	2507	Handknob	1
274	2506	Fence Bar	1
275	2144	Spacer	2

CIRCLE CUTTING ATTACHMENT - PART No.SP260

280	2545	Arm	1
281		Std. Washer	5
282		Soc. Hd. Cap Screw	5
283	2544	Bracket	1
284	2543	Centre Pin	1

OPTIONAL EXTRAS & ACCESSORIES (CONTINUED)

290 Model BSO.16 Welder & Grinder Unit, for joining blades up to $\frac{5}{8}$" wide from bulk coil stocks. Complete with motorised grinder, cropper and annealing controls.

NOT ILLUSTRATED :

SM972 Cabinet Base (see page 3)

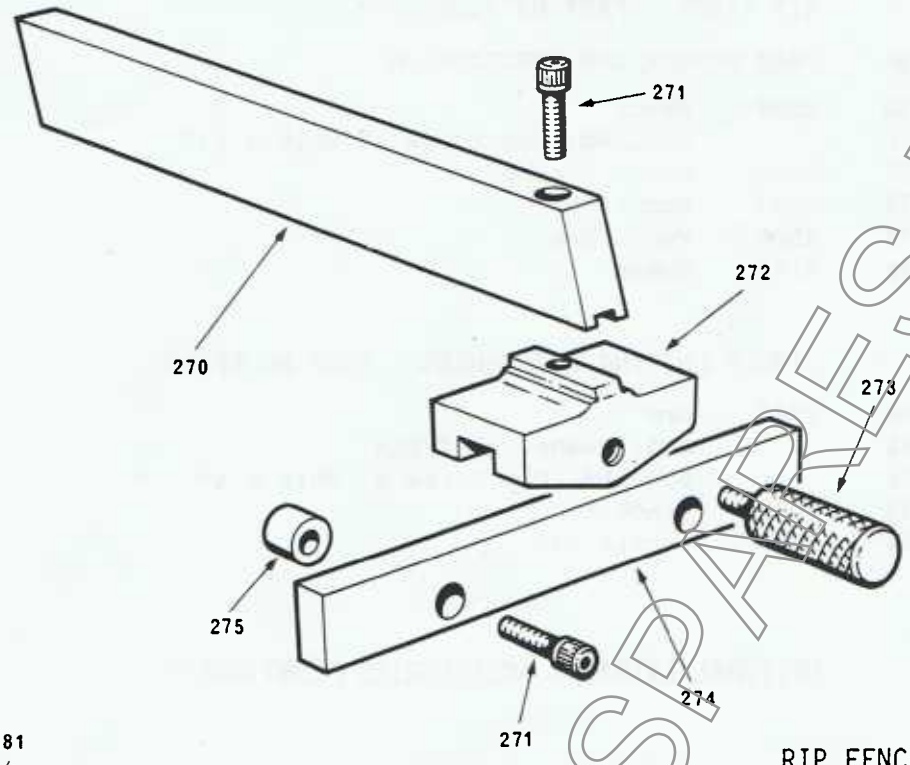
Fused Isolator

Isolator, lock with 2 keys

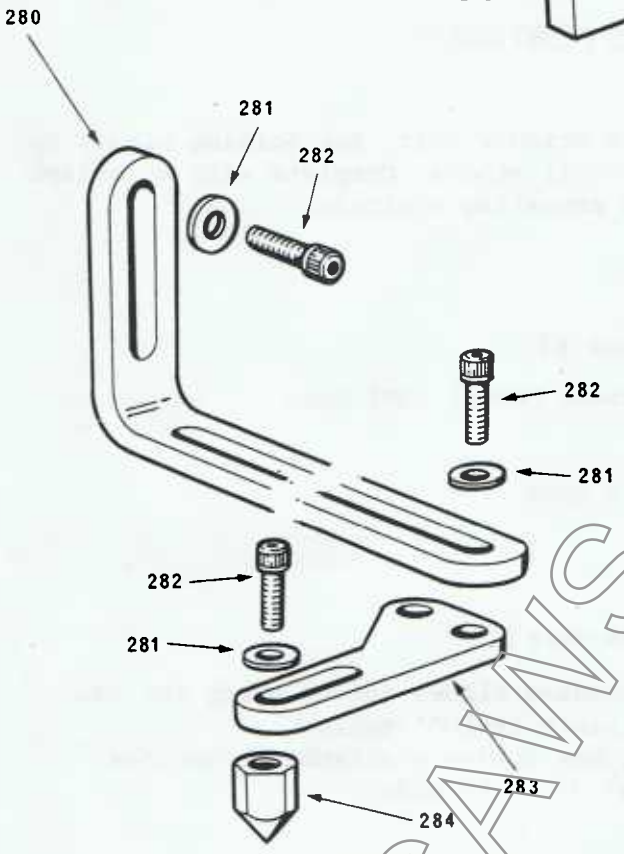
Key operated switch

240 volt lighting

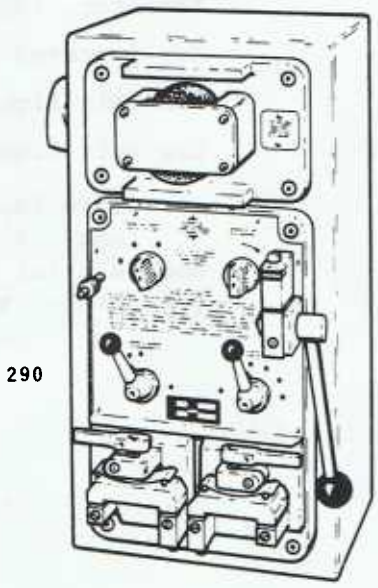
Low volt lighting (24 volt)



RIP FENCE



CIRCLE CUTTING
ATTACHMENT



MODEL BSO.16
WELDER & GRINDER UNIT