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

HANDBOOK
BO10372

H200W

HORIZONTAL BANDSAWING MACHINE

ISSUE 1 24-02-92 RF10756

QUALITY BANDSAW BLADES

TO SUIT THE H200W MODEL

ORDER LINE- 01634 850833

A.L.T. SAWS & SPARES LTD

Unit 15, Pier Road Industrial Estate

Gillingham

Kent

ME7 1RZ

www.altsawsandspares.com

CONTENTS

SPECIFICATION

Model H200W	4 Speed Manual, Horizontal Bandsawing Machine			
Cutting Capacity **@ 90 Degrees** (Horizontal Position)	8" Diameter			203mm
Blade Speeds				
Feet per Minute	60	100	160	225
Metres per Minute	18	30	49	69
Wheel Diameter	11"			280mm
Blade Size				
Imperial	98" x 3/4" x 0.032"/0.035"			
Metric	2490mm x 20mm x 0.8mm/0.9mm			
Electric Supply	115/230 Volt	1 Phase	60 Hz	
(Alternative 1)	220/240 Volt	1 Phase	50 Hz	
(Alternative 2)	220/440 Volt	3 Phase	60 Hz	
(Alternative 3)	380/415 Volt	3 Phase	50 Hz	
(Alternative 4)	575 Volt	3 Phase	60 Hz	
Motor	1.25 H.P.	1425 R.P.M.	0.9 kW	
Gross Weight	409 pounds		186 Kilograms	

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

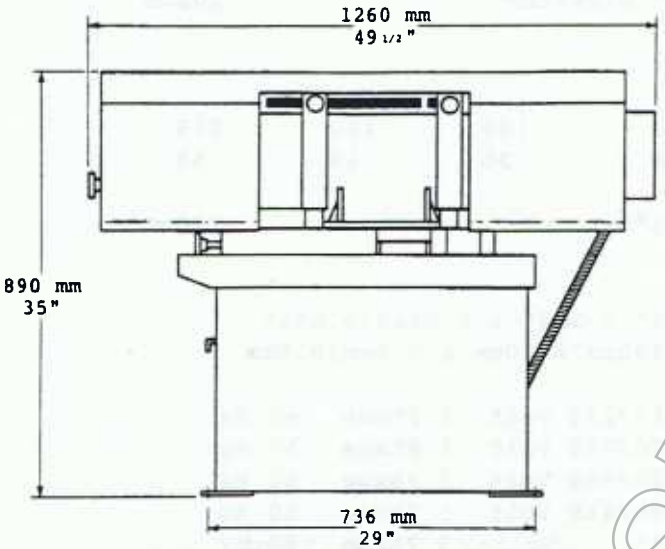
When ordering parts, please state:-

1. Machine Model and Serial Number
2. Part Number (where applicable) and Description
3. Quantity required
4. Specify power supply for electrical components

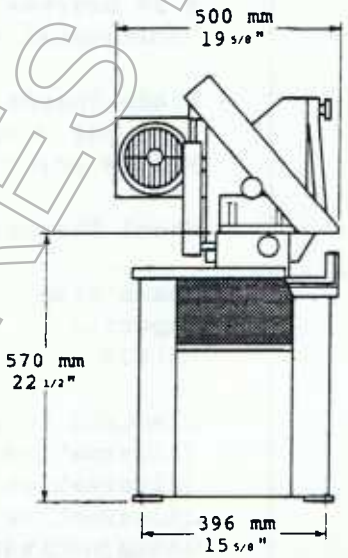
NOTE: ILLUSTRATIONS MAY VARY IN DETAIL, ACCORDING TO MODEL

HEIGHT OF MACHINE WITH BOW RAISED = 3657 mm, 144"

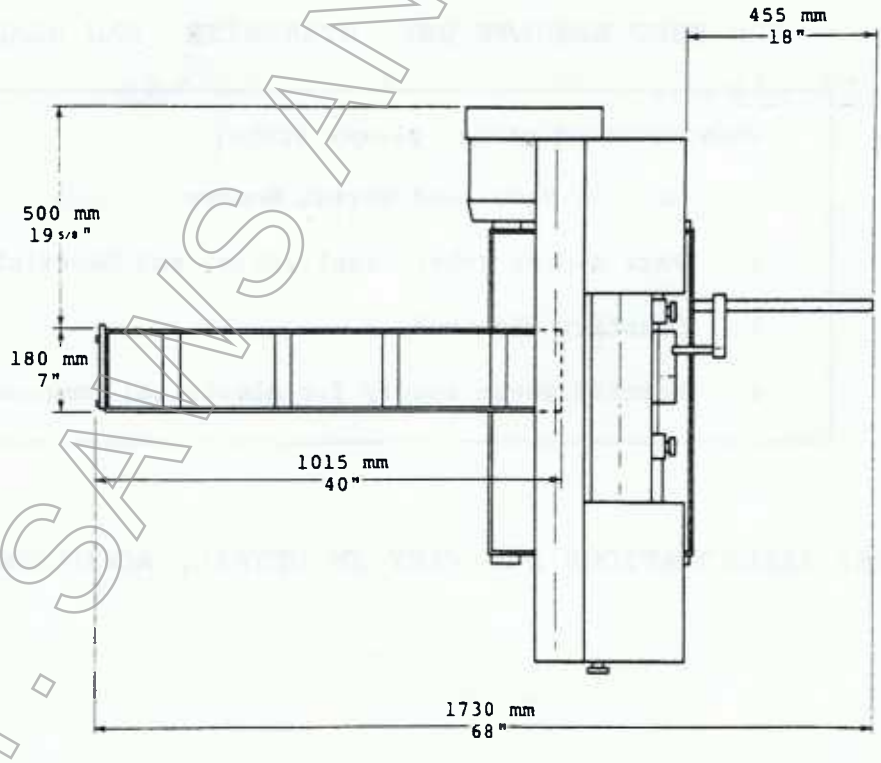
ALL DIMENSIONS ARE APPROXIMATE.



FRONT VIEW

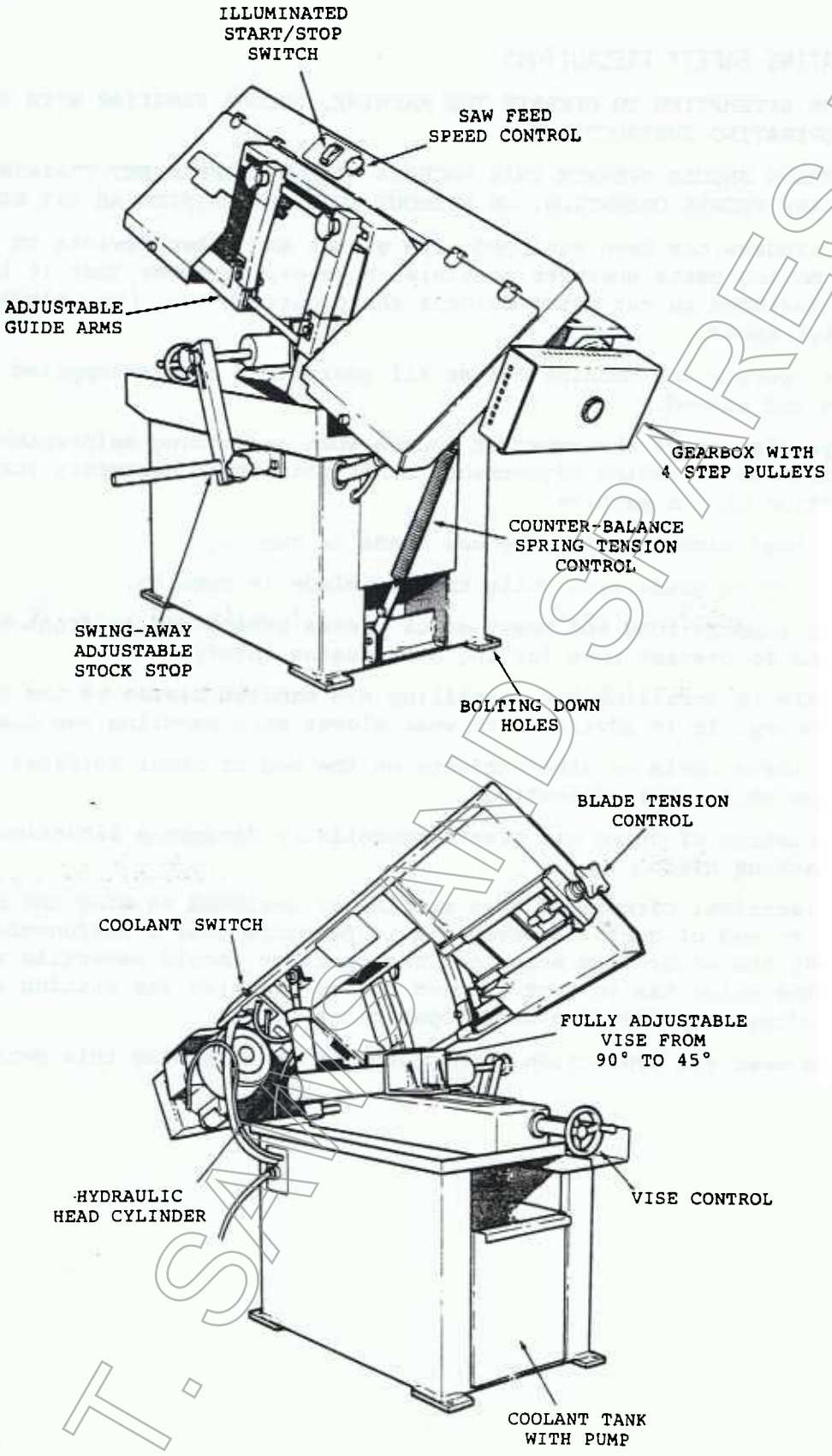


SIDE VIEW.



PLAN

FOUNDATION PLAN OF H200W HORIZONTAL BANDSAW.



GENERAL LAYOUT OF MODEL H200W.

OPERATING SAFETY PRECAUTIONS.

BEFORE ATTEMPTING TO OPERATE THE MACHINE, BECOME FAMILIAR WITH THE CONTROLS AND OPERATING INSTRUCTIONS.

NO PERSON SHOULD OPERATE THIS MACHINE WITHOUT SUFFICIENT TRAINING AS TO ITS SAFE AND PROPER OPERATION, OR WITHOUT SUCH SUPERVISION AS MAY BE NECESSARY.

This bandsaw has been equipped with guards and other devices to protect from moving parts wherever possible. However, remember that it is a machine tool designed to cut metal using a sharp cutting tool (saw blade) moving at high speed.

Never operate the machine unless all guards and covers supplied are in place and closed.

Always disconnect the power at source when performing maintenance work on the machine or making adjustments other than those necessary for the normal operation of the machine.

Never load machine while the saw blade is running.

Never adjust guide arms while the saw blade is running.

Always support long and heavy stock pieces behind and in front of the machine to prevent them falling and causing injury.

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

Never leave tools or other objects on the bed or other surfaces of the machine while it is operating.

Accumulation of chips can create potentially dangerous situations, keep the machine clean.

The electrical circuit of this machine is designed to stop the blade drive motor at end of cycle. However, it is possible that a malfunction could prevent the motor from stopping. The operator should ascertain visually that the motor has in fact stopped before entering the cutting area for re-loading or performing other operations.

Always wear eye protection when operating or attending this machine.

SECTION 140

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INSTALLATION.

IMPORTANT: DO NOT LIFT MACHINE BY SLING FROM HEAD.

Site the machine with adequate working space around it for ease of use. Avoid siting the machine in a cramped corner where operation may prove difficult or near a gangway where a long workpiece may cause an obstruction. THe whole working area should be well illuminated and the floor around the machine provided with a level and non-slip surface.

The cabinet base is provided with four bolting down holes to accept 10 mm (3/8") diameter bolts (not supplied). Where bolting down is required, ensure that the machine stands firm and level.

Remove the anti-rust protective coating where applied, and in particular from the working elements of the machine.

Remove the bracket clamping the head of the machine to the bed. This bracket is fitted to avoid damage during transit and is not required for the operation of the machine.

Fill coolant tank with approximately 7 U.S. gallons (26 litres) of a good grade of soluble oil diluted about 10 to 1.

IMPORTANT: DO NOT LET PUMP RUN DRY, OR DAMAGE MAY RESULT.

CONNECTION TO THE ELECTRICITY SUPPLY.

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

OPERATING INSTRUCTIONS.

SETTING VISE JAWS:

Set fixed vise jaw to required angle, making sure that workpiece clears right-hand guide assembly.
The moving vise jaw clamps and locks simply by turning vise control handknob (see Fig.1) clockwise.
To release workpiece at end of cut turn vise control handknob anti-clockwise.

An adjustable stock stop is supplied for repetition sawing.

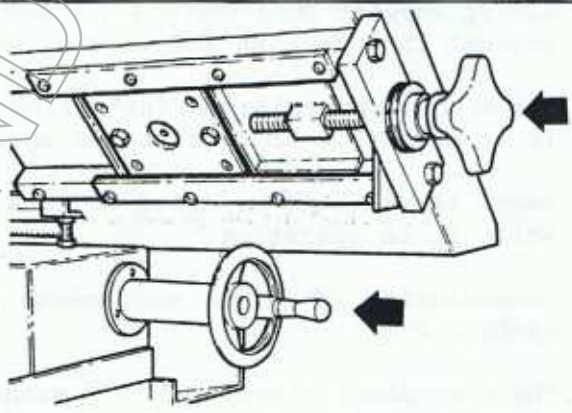


Fig.1.

BLADE GUIDES:

For straight (90deg.) cutting the right-hand guide assembly should be set as close as possible to the workpiece, but for angled cutting it may be found necessary to move the guide assembly to the right to enable the full capacity of the machine to be used.
The left-hand guide assembly should be set with the head raised so that the guide assembly just clears the moving vice jaw as shown in Fig.2.

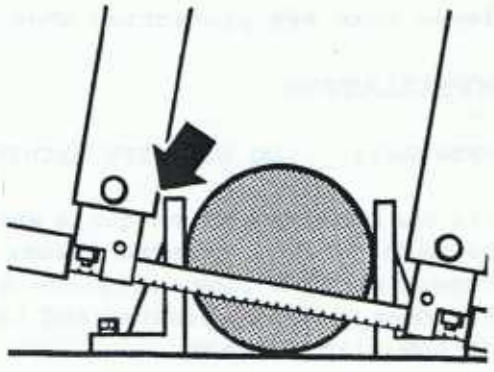


Fig.2.

SPEED SELECTION:

The 'Sawing Guide Chart' (see Section on `Sawing Practice') gives a guide as tothe speed required for different materials. The 4 speeds available on this machine are obtained by swinging aside the belt guard and pushing the motor platform towards the spring (see Fig.3). Place vee-belt in appropriate pulley grooves (see speed plate on machine) and replace belt guard.

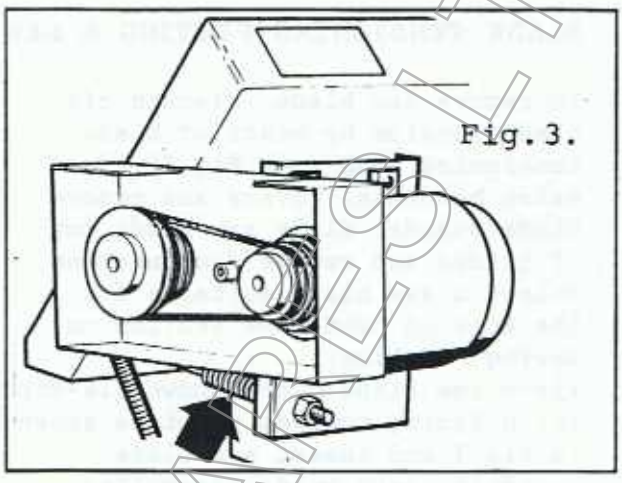


Fig.3.

SAW FEED PRESSURE:

The saw feed pressure (or headweight) is controlled by means of the counter-balance spring. To adjust head weight raise head, remove knurled knob and place link in appropriate hole (see Fig.5). Feed speed is controlled by the hydraulic control valve (see Fig.4). The `Guide To Using Sawing Controls' (see Section on Sawing practice) gives a guide as to the use of these controls.

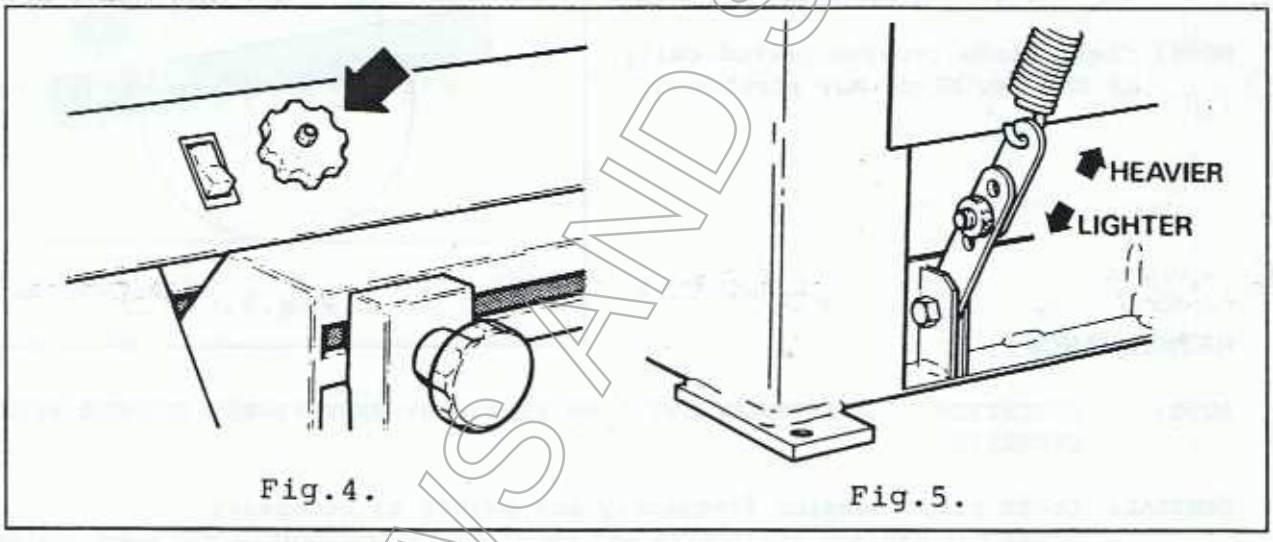


Fig.4. Fig.5.

CUTTING:

Before starting the machine, check it is safe to do so. Make sure that all necessary adjustments have been completed and all guards are in position and secure.
At end of cut the machine will automatically stop. To re-start machine, close feed pressure valve (see Fig.4), lift up machine head to required height, start machine and re-set feed pressure valve.

BLADE TENSIONING/FITTING A NEW BLADE.

To remove saw blade, slacken off blade tension by means of blade tensioning knob (see Fig.6). Raise bandwheel covers and remove blade guards. Slide saw blade out of guides and remove from machine. Select a saw blade suitable for the work in hand (see Section on Sawing Practice). Place saw blade over bandwheels with teeth facing towards pivot as shown in Fig.7 and insert saw blade carefully into guide assemblies. Check that back edge of saw blade is against flanges of bandwheels before tensioning blade. To obtain correct blade tension, turn blade tensioning knob until collar allows setting slip to become engaged see Fig.6.

NOTE: Check blade tension periodically as the saw blade may stretch.

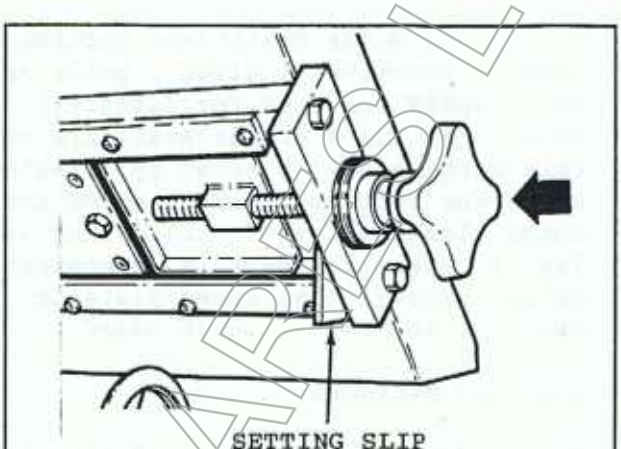


Fig.6.

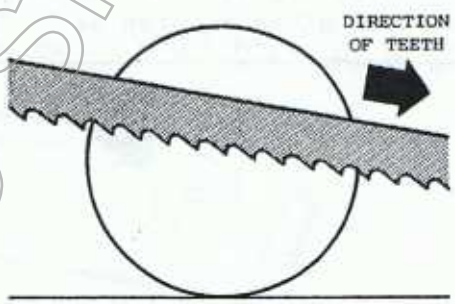


Fig.7.

MAINTENANCE.

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

GENERAL: Check blade tension frequently and adjust as necessary.
Clean out coolant drain pipe and swarf chute frequently and keep coolant drain holes free.

WEEKLY MAINTENANCE: Check level of coolant in coolant tank. If necessary top up with a good grade of soluble oil diluted about 10 to 1.
Clean and lubricate all miscellaneous moving parts.

MONTHLY MAINTENANCE: Check blade guide assemblies for wear.
Check level of hydraulic cylinder and top up as necessary.
Check condition and tension of vee-belt, and replace or adjust as necessary.

YEARLY MAINTENANCE: Drain coolant, clean tank and pump (see Coolant Section for instructions). Refill with approximately 7 U.S. gallons (26 litres) of clean coolant diluted about 10 to 1.

NOTE: The main drive gearbox is grease sealed for life and should not require further maintenance.

APPROVED LUBRICANTS.	
GENERAL LUBRICATION	ESSO Esstic 50 Oil GULF Service 51 Oil MOBIL Vactra or D.T.E. Heavy Medium Oil TEXACO Ursa P20 Oil
HYDRAULIC CYLINDER	ESSO Nuto H44 Oil GULF Harmony 43AW Oil MOBIL D.T.E. 24 Oil TEXACO Rando HDA or HD32 Oil

CHECKING & RE-CALIBRATING HEAD WEIGHT (SAW FEED PRESSURE).

1 Before checking the head weight, adjuster'A' should be in the appropiate hole as shown in Fig.8 and knirled knob 'B' secured in place.

2 Raise head so it is approximately one inch off the machine head and close 'Feed Speed' control valve.

3 Place spring-balance scales over blade tension handle (see Fig.9). Hold spring-balance and open 'Feed Speed' control valve. A head weight reading of approximately 6lbs.(2.7kg.) should be obtained.

4 If the head weight is incorrect, proceed as follows :-
Raise head and close 'Feed Speed' control valve. Remove hex. screw 'D' and replace into the appropiate hole in link 'C' (see Fig.8).

5 Re-check head weight as in 4. If it is now approx. correct tighten screw 'D'.

6 By selecting one of the top three holes in link 'C', a working range of approximately 4lbs.(1.8kg) MINIMUM-9lbs (4.1kg) MAXIMUM should be obtained. When no further adjustment of the spring is possible it should be replaced.

*NOTE : The top three holes in the link are for working adjustment, and the lower three holes are for re-calibration (when necessary).

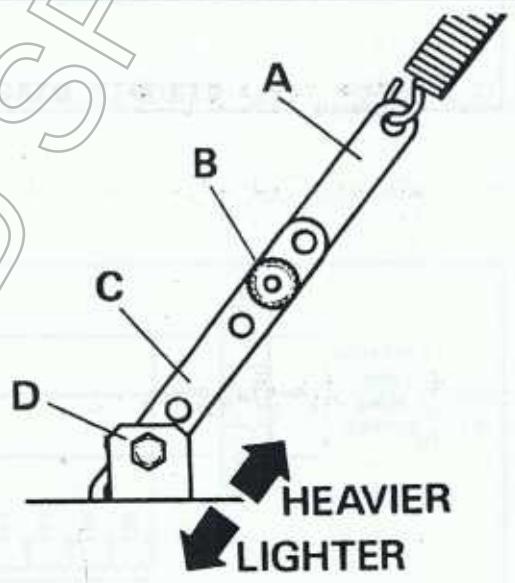


Fig.8.

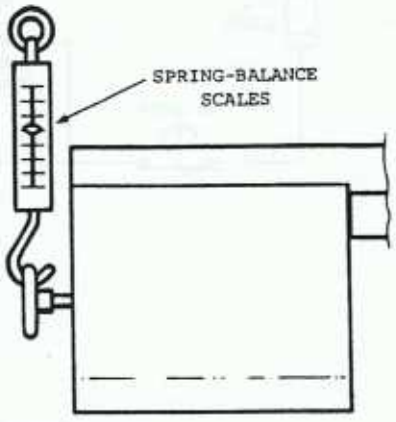
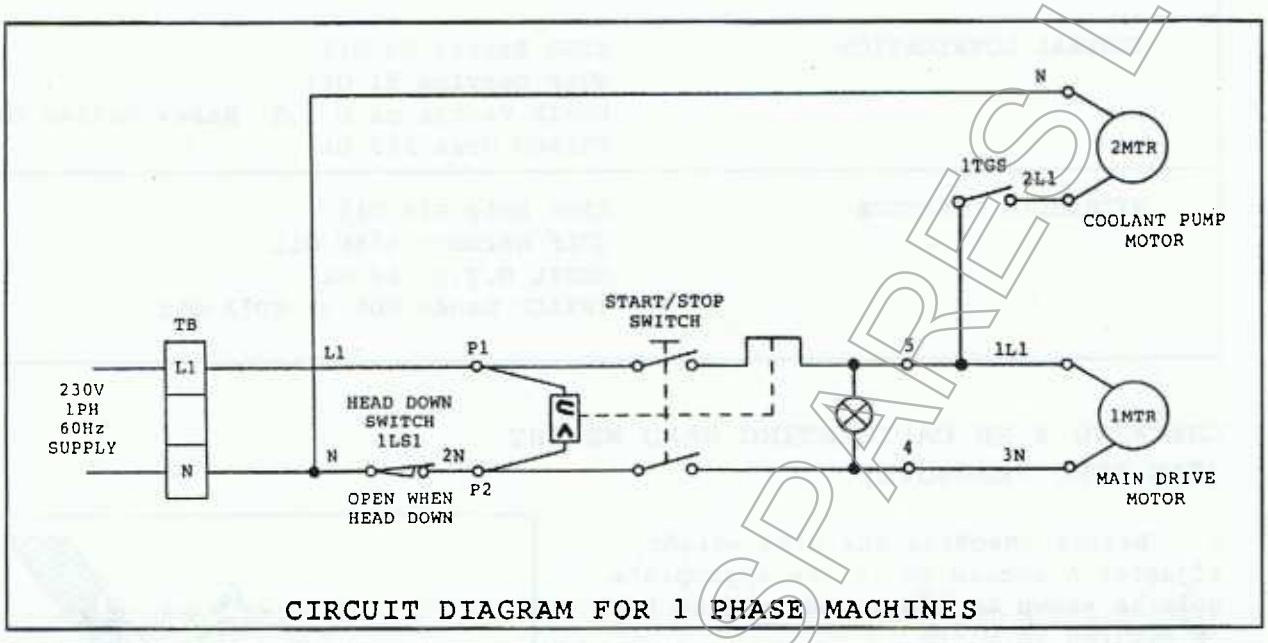
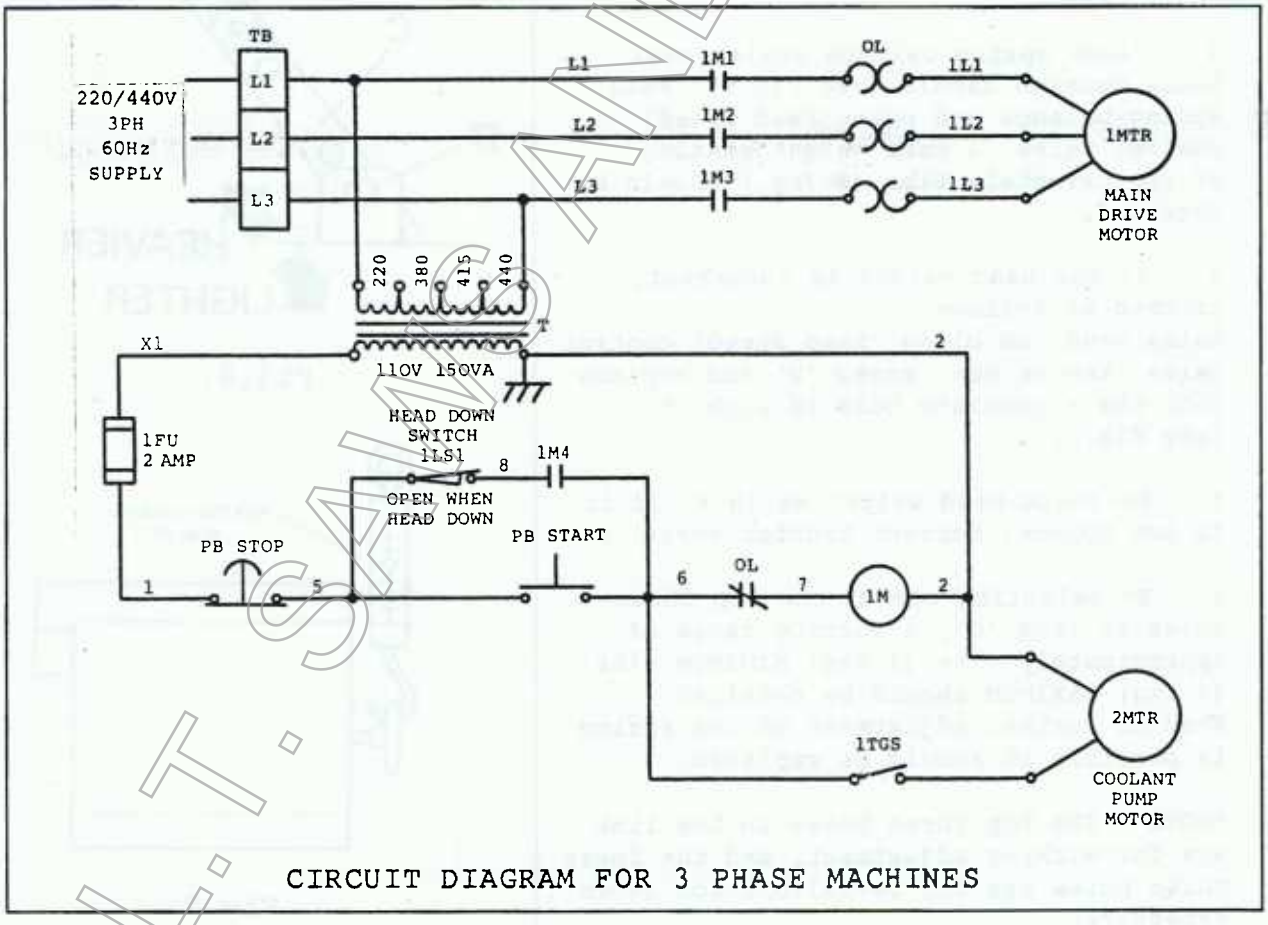


Fig.9.



CIRCUIT DIAGRAM FOR 1 PHASE MACHINES



CIRCUIT DIAGRAM FOR 3 PHASE MACHINES

SECTION 144

CONNECTION TO THE ELECTRICITY SUPPLY.

IMPORTANT: Check that the electricity supply is suitable for the machine, see data label inside electrical control box. At all times ensure that che machine is isolated from the mains supply before making any electrical connections or adjustments.

At rear of machine, remove electrical control panel cover. Pass supply leads through hole in side of stand.

For single phase supply, connect supply leads to terminals L1 & N of terminal block and earth lead to earth terminal as shown in Fig.1.

For three phase supply, connect supply leads to terminals LI, L2 & L3 of terminal block and earth lead to earth terminal as shown in Fiq.2.

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

A three phase motor may run in either direction, therefore, raise bandwheel covers and check that bandwheels run in an anti-clockwise direction. If necessary, interchange any two supply leads to reverse rotation. With all connections made, replace electrical control panel cover.

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

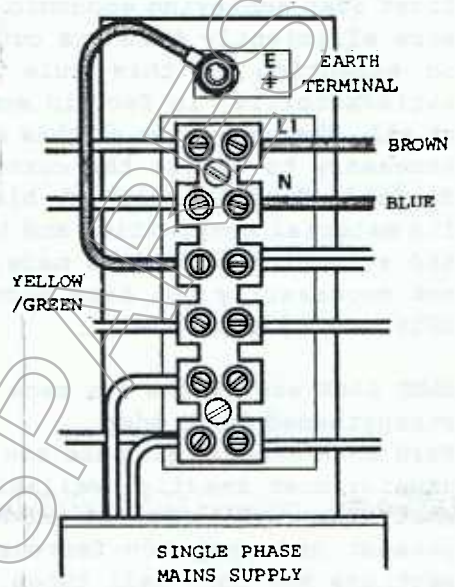


Fig.1.

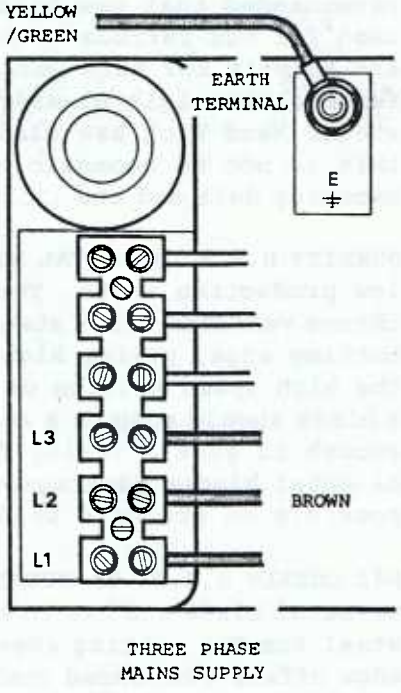


Fig.2.

Single Phase 60Hz machines are supplied ready for use complete with electrical cable and plug

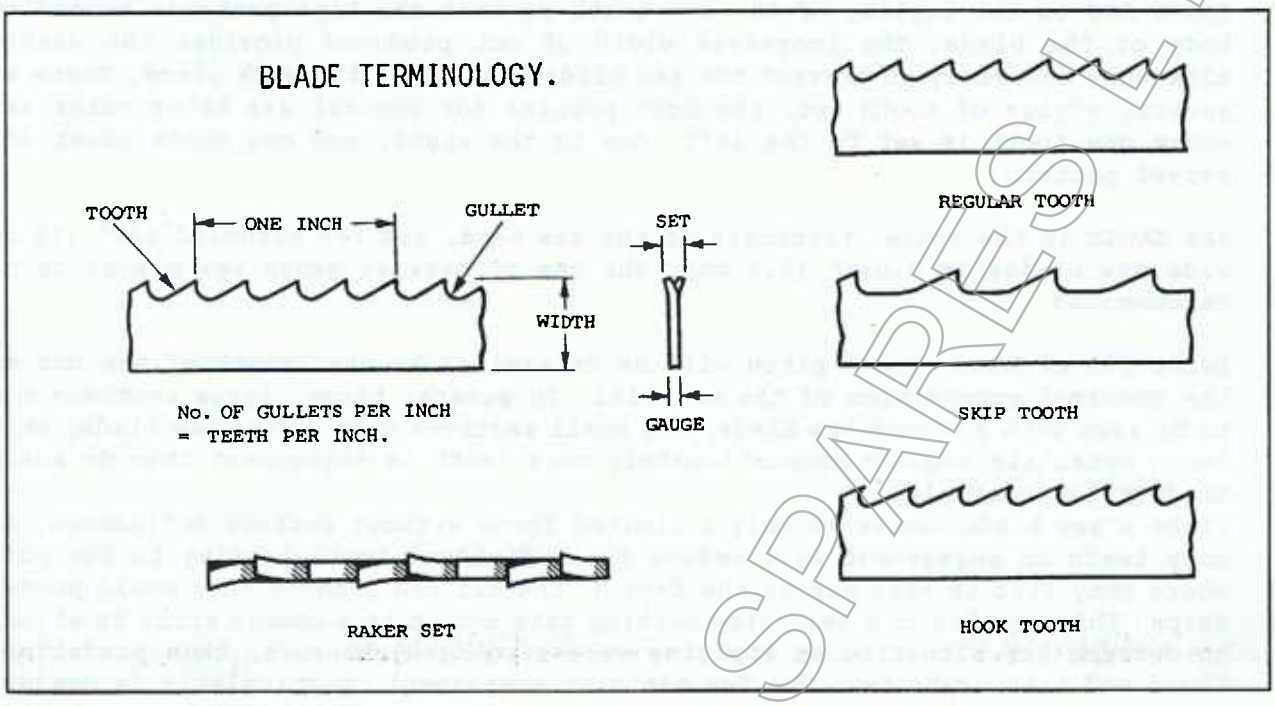
BLADE SELECTION.

There are many types of saw blades available and each is superior in some way for specific applications. Selection of the correct blade for the job is a positive first step achieving economic cut-off production, for no machine tool can function more efficiently than its cuttlng tool will allow and the bandsawing machine is no exception to this rule. No one saw blade will cope with all the jobs satisfactorily, in fact in some cases an ill chosen blade will virtually not saw at all. The objective of this section of the handbook is to present the information necessary to select the correct saw blade for the job.
To fully describe any saw blade it is necessary to know not only its size, but its material composition and tooth form. The cost of each type varies considerably and selection should be made according to duty as the lowest cost saw blade is not necessarily the more economic while the use of the more expensive types is often not justifable.

HARD BACK saw blades are made from high quality carbon steel and have a specially strengthened back edge.
Hard Back general purpose saw blades cost less than other types of blades and are usually most readily available in a wide range of styles. They are suitable for short-run work in sawing and medium carbon steels where there is no surface scale present and many non-ferrous alloys. They are suitable for sawing structural sections and thin wall tubes, also where blade breakage is a problem due to the machine being used for general jobbing and sawing particulary be more than one operator. Hard Back blades perform very well on most extruded aluminium alloys and their high flex life makes them a good choice for this type of work. It is recommended that saw blades that have been used for sawing steel should not be used for non-ferrous materials. In particular, use a new blade to saw aluminium and keep it for this work. When the teeth are no longer keen enough to saw non-ferrous materials cleanly, the saw blade may finish its working life on sawing steel. Hard Back saw blades are easily re-weldable but in normal circumstances this is not an economic proposition as when the saw blade breaks the teeth are becoming dull and the limited life remaining does not warrant the cost of welding.

QUALITY H.S.S. BI-METAL saw blades permit high speed sawing with low breakage and low production costs. The bi-metal blade has all the resilience of a basically chrome vanadium alloy steel structure, electron beam welded to a quality high speed cutting edge, giving high speed steel performance and a tough flexible backing. The high speed section of the blade ends short of the gullet reducing shatter if a blade should snap on a really awkward cut. Built-in breakage resistance and tough enough to give a really fast and accurate cut time after time makes the use of bi-metal blades advatageous to all bandsaw operators. Re-welding these blades is possible on standard welding units.

M42 COBALT H.S.S. BI-METAL saw blades offer all the advantages of the M2 quality bi-metal blade and has in addition, a higher quality, higher performance high speed steel for the cutting edge. The use of M42 Cobalt H.S.S. material for the cutting edge offers a balanced combination of superior hardness and toughness, making this blade ahead in performance on the most difficult or abrasive materials. The use of this type of blade is not restricted to the cutting of difficult materials, but can also be used on the more easily machined materials where greatly improved blade life can be expected. Heat treated to give high tooth hardness to resist abrasion, this blade has been specially developed for use on austenitic nickel chrome steels, nimonics, inconel, cobalt and nickel based alloys, heat resisting alloys and the space age exotic materials. Re-welding these blades is as for M2 blades.



Each of the types of saw blade are available in various tooth forms and tooth pitches. Here again selection is required to obtain the right blade to achieve optimum sawing performance. Metal cutting blades are generally manufactured in three basic tooth forms, namely:-

REGULAR TOOTH, SKIP TOOTH & HOOK TOOTH.

Terminology varies among saw blade manufacturers and these may be otherwise referred to as:-

PRECISION TOOTH, BUTTRESS TOOTH or CLAW TOOTH respectively.

REGULAR TOOTH saw blades are in most common 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 firm accurate work on most ferrous materials and is recommended for most general cutting operations except @oft and ductile materials where its teeth have a tendency to clog. Standard pitches are 6, 8, 10 @ 14 teeth per inch.

SKIP TOOTH is characterised by the straight sided teeth, sharp root radius and long, flat gullet. Skip tooth saw blades are especially suitable for sawing soft non-ferrous materials as the tooth profile breaks up the large ductile chips which tend to clog regular teeth. Standard pitches are 3, 4 & 6 teeth per inch.

HOOK TOOTH form has a positive front rake which considerably assists in work penetration and hence produces better and faster cutting on the harder ferrous and non-ferrous materials, particularly when sawing large sections. This tooth form is not very suitable for use on abrasive materials and is not recommended for sawing thin wall tubing. Standard pitches are 2, 3, 4 & 6 teeth per inch.

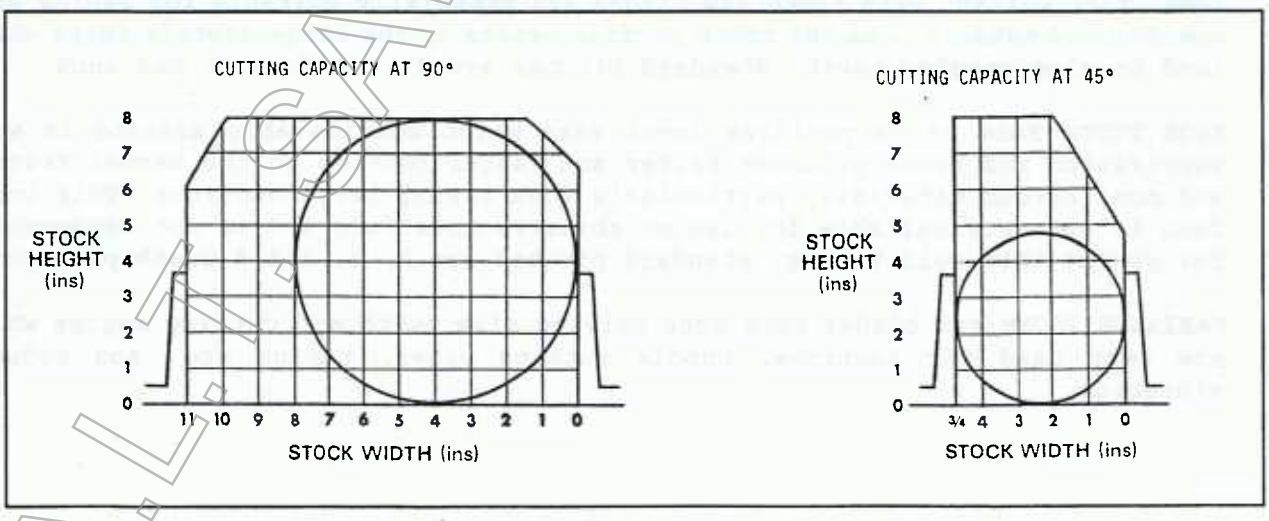
VARIABLE TOOTH saw blades have both varying size teeth and cutting angles which are best used for sections, bundle cutting pipes, tubing etc. and reduces vibration.

TOOTH SET is the angling of the saw teeth so that the tips protrude beyond the body of the blade. The increased width of cut produced provides the working clearance necessary to prevent the saw blade binding in the work piece. There are several styles of tooth set, the most popular for general use being raker set, where one tooth is set to the left, one to the right, and one tooth unset in a repeat pattern.

SAW GAUGE is the actual thickness of the saw band, and for standard 3/4" (20 mm) wide saw blades is 0.035" (0.9 mm). The use of heavier gauge saw blades is not recommended.

Selection of blade tooth pitch will be determined by the length of the cut and the chemical composition of the material. In general terms, large sections need to be sawn with a coarse saw Slade, and small sections with a fine saw blade, while tough materials require proportionately more teeth in engagement than do softer or ductile materials.
Since a saw blade can exert only a limited force without serious deflection, too many teeth in engagement will reduce the individual tooth loading to the point where they tend to skid across the face of the cut and produce only small powdery chips. This results in a very slow cutting rate and it is a common error to attempt to correct the situation by applying excessive feed pressure, thus producing a bowed and inaccurate cut. Too few teeth in engagement, particularly in conjunction with a heavy feed rate, cause each tooth to attempt to remove too much material. The stubby chips produced break away prematurely and cause vibrations in the form of blade chatter. Persistent sawing under these conditions rapidly dull the teeth by impact and in extreme cases overload the saw blade to the point where the teeth break away.

As a general guide to selecting an appropriate tooth pitch, use ten to six teeth per inch on sawing solid sections up to one inch wide; eight to six teeth per inch on sections one to three inches wide; six to four teeth per inch on sections three to six inches wide; and three to two teeth per inch on se'ctionsover six inches wide. Steel tubes and structural sections sometimes present a problem as the actual length of the saw cut alters considerably due to changes in section. In these cases use a saw blade which allows two or three teeth in engagement at the thinnest section.
The working life of a saw blade can be extended by using only a light feed pressure during its first few minutes of sawing. Care must be taken when running in a new saw blade on work hardening materials as any tendency for the teeth to rub will rapidly burnish the cut and make further sawing impossible.



SAWING GUIDE CHART					
MATERIAL	BLADE T.P.I.	BLADE SPEED F.P.M.	MATERIAL	BLADE T.P.I.	BLADE SPEED F.P.M.
Aluminium Alloys	6	225	High Chrome Steels	10-14	100
Aluminium Castings	6	160	High Speed Steels	10-14	160
Angle Iron - Light	14	160	I Beams	10-14	160
Angle Iron - Heavy	10	160	Machine Steel	10-14	160
Brass Sheets - Rods	10	160	Malleable Iron	10-14	160
Brass Castings - Soft	10	160	Monel Metal	10-14	60
Brass Castings - Hard	10	100	Nickel Steel	10-14	60
Bronze	10	100	Pipe Iron Soil	10-14	160
Bakelite	10	225	Pipe Steel	10-14	160
Boiler Tubes	10	160	Pipe Galvanized	10-14	100
Cast Iron Pipe -Solids	6-10	160	Plastics	10-14	225
Channel Iron	6-10	160	Steel under 50 Carbon	10-14	160
Cold Rolled Steel	10	160	Steel over 50 Carbon	10-14	100
Copper	10	160	Structural Steel	10-14	160
Drill Rod	10	100	Tube Steel Light	14-18	160
Fibre	10	100	Tube Seamless Heavy	10-14	160
NOTE: SAWING GUIDE FOR MATERIALS USING CARBON STEEL SAW BLADES					

SAWING GUIDE

The above chart is intended as a guide only.

In general blade speeds listed should not be exceeded. However, it is a serious mistake to use blade speeds which are too low, particularly with finer pitch saw blades, unless feed pressure is reduced also. This can cause overloading of the teeth and inaccurate cuts or blade breakage.

GUIDE TO USING SAWING CONTROLS.

FEED PRESSURE:

Required to move saw frame and remove chips.
Should be set 'HEAVIER' on materials with low machinability rating and 'LIGHTER' on materials that are more easily machined.
Excessive feed pressure leads to premature blade breakage and/or crooked cuts.
Insufficient feed pressure dulls the saw blade as it tends to rub rather than cut.
Increases in feed pressure normally require corresponding increases in blade speed especially in less hard materials.

FEED SPEED:

Controls the rate at which the saw frame moves.
The speed should be set so that the saw frame moves only as fast as the material is being removed.
The speed should be set slow enough to approach the workpiece without damaging the saw blade upon contact with the workpiece.
Can be set to control the sawing with precision, especially while cutting thinner portions of light tubing or structurals and helps to avoid plunging.
If the speed is too slow the chip load will be less than optimum

BLADE SPEED:

Controls how quickly the material is being removed.
Should be set fast enough to stop teeth becoming overloaded.
If the speed is set too fast the chip load will be less than optimum and/or the saw blade may dull prematurely.
Increases in blade speed require corresponding increases in feed pressure especially in less hard materials.

CHIP LOAD:

Careful observation of the chip load is very important when sawing.
Chips should be curled as shown in the illustration.
Excessively tight curling indicates too much feed pressure, and a lack of any curl indicates feed pressure is too light.
Chips that are blue in color indicate blade speed is too fast and/or too much feed pressure leading to premature blade breakage.

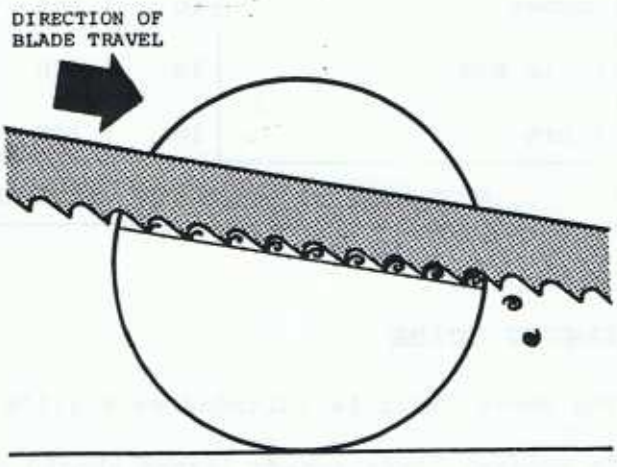


Illustration Showing Desirable Chip Form

SECTION 150

COMMON SAWING PROBLEMS.

SAW BLADE WILL NOT CUT:

Drive motor running in wrong direction, bandwheels should-run in an anti-clockwise direction.
Blade teeth facing in wrong direction, teeth must point in direction of blade travel.
Material far too hard for type of saw blade being used.

BLADE VIBRATES IN CUT:

Workpiece not properly seated or securely held.
Guides set too close on small diameter workpieces.
Blade speed too fast and/or blade pitch too coarse.
Insufficient blade tension.

PREMATURE BLADE BREAKAGE:

Excessive feed pressure.
Incorrect blade speed and/or incorrect blade selection.
Incorrect blade tension and/or incorrect tracking.
Feed speed too fast.
Worn or incorrectly set guides.
Blade joint improperly welded and annealed.
Workpiece not firmly clamped in vise jaws.
Cut-off piece binding between blade and stock stop.
Blade overheating due to cutting without coolant.
Chips and swarf building up on bandwheels.

TEETH TORN FROM BLADE:

Excessive feed pressure.
Blade speed too slow.
Gullets of teeth overloading, blade pitch too fine.
Blade pitch too coarse.
Feed speed incorrectly set.
Workpiece not firmly clamped in vise jaws.
Workpiece too wide, where possible cut rectangular pieces up on side.

CROOKED CUTS:

Excessive feed pressure.
Incorrect blade tension.
Blade speed too slow.
Feed speed incorrectly set.
Guides not controlling blade correctly through wear or incorrect adjustment and/or guides set too far from workpiece.
Blade teeth dull or of too fine pitch.
Vise jaws not set square to saw blade.
Bandwheel flanges worn causing loss of set to one side of saw teeth.

BLADE TEETH DULL RAPIDLY

Blade overheating due to cutting without coolant.
Blade speed too fast.
Feed speed too slow.
Blade pitch too coarse.
Feed pressure too light.
Material too hard for type of saw blade being used.

SAW BLADE BACK DAMAGED:

Material too hard for type of saw blade being used.
Tracking incorrect, blade set too hard against bandwheel flanges. Carbide back-up insert missing from one guide assembly.

SAW BLADE STALLS IN CUT:

Excessive feed pressure.
Feed speed too fast.
Incorrect belt tension and/or worn belt or worn pulleys. Incorrect blade speed and/or incorrect blade selection.

HEAD BOUNCES DURING CUT:

Blade joint improperly welded and annealed.
Teeth missing from saw blade.
Feed pressure set too light.
Bandwheels or pulleys loose.

CUTTING TIME INCREASES:

Blade teeth have become dull.
Feed pressure set too light.
Incorrect blade speed.

STEP CUTTING:

Drive chain of Roller Feed Vice slack.
End stop assembly swinging away from workpiece too early.

INFEED ROLLER STOCK TABLE (PART No.SM1271).

Complete with tail end stop, rollers and adjustable feet (see Fig.1), this unit can be bolted to the rear of the machine when cutting long or heavy materials.
To level unit place only the outboard roller in position and with a s8raight-edge laid off the machine bed, align roller for height by adjusting feet.
More than one infeed roller stock table can be used by simply bolting units end to end and level as before.

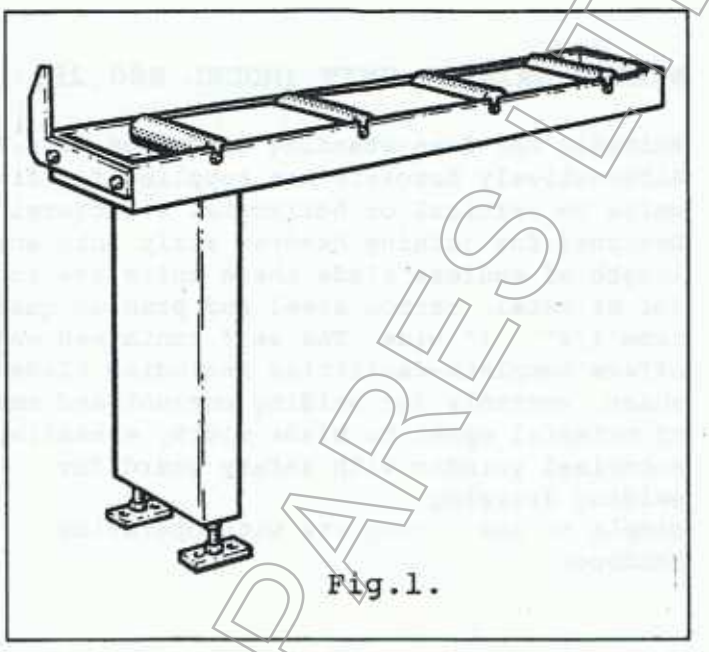


Fig.1.

STOCK STAND (PART NO.SM559).

A fully adjustable sturdy stock stand (see Fig.2) is available for use at the front or rear of the machine when cutting long or heavy materials.

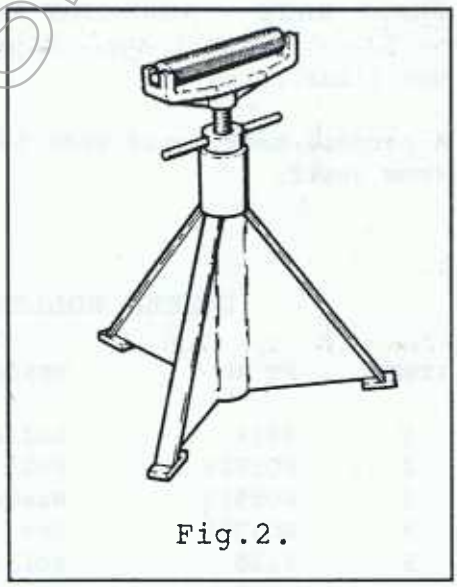


Fig.2.

FLUSMING HOSE (PART No.SM1283)

NOT ILLUSTRATED.

A flushing hose with adjustable nozzle is available complete with fittings. It can be used independently from the coolant jets when the coolant pump is running. To fit proceed as follows:-
Inside coolant tank, remove stem adaptor and replace with T-stem adaptor supplied and attach end of flexible tube from flushing hose.

SET OF CASTORS (PART No.SM1274) - NOT ILLUSTARTED.

A set of four steel faced castors are available which can be quickly secured to the bolting down holes in the base of the machine. This may be required for ease of moving where the machine may need to be moved around the workshop.

WELDER GRINDER UNIT (MODEL BSO.25)

Suitable for free-standing operation (see Fig.3) Alternatively brackets are supplied for fixing units to vertical or horizontal structure. Designed for joining bandsaw strip into any length of endless blade these units are suitable for bi-metal, carbon steel and premium quality from 1/8" - 1" wide. The self contained unit offers complete facilities including blade shear, controls for welding current and amounts of material upset to blade width, annealing and motorised grinder with safety guard for welding dressing.
Simple to use - complete with operating handbook.

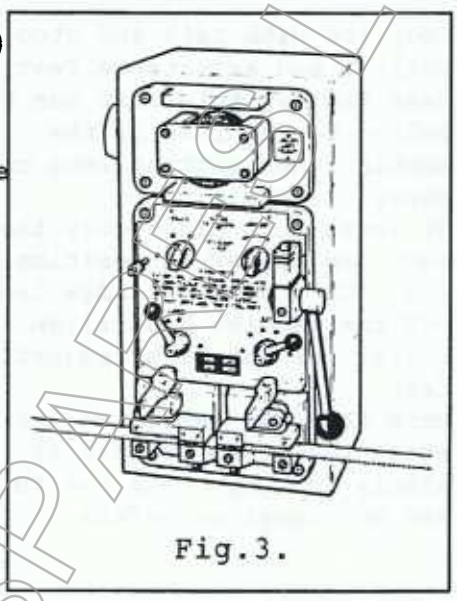


Fig.3.

SWARF RAKE - ASSEMBLY NO: SM1379

Not Illustrated

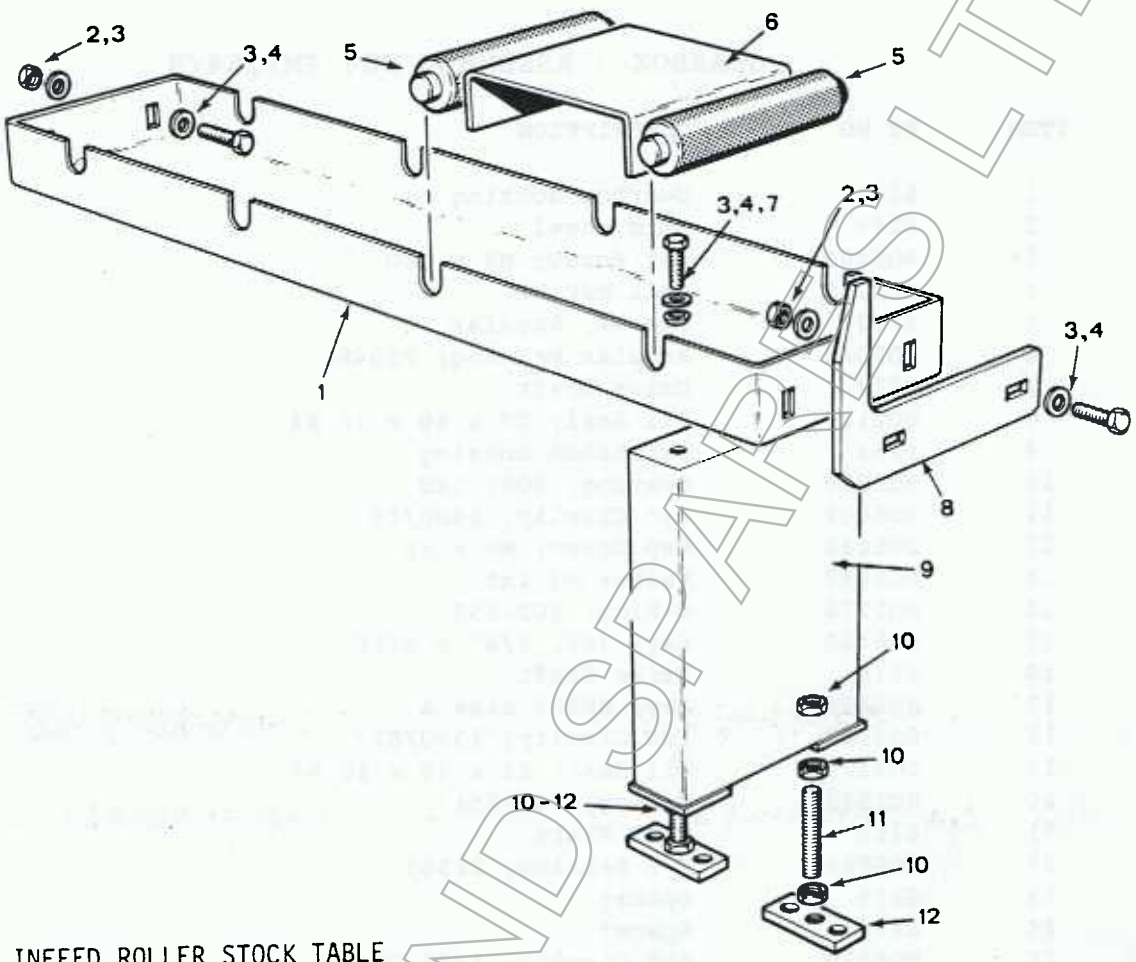
A purpose made swarf rake is available for keeping the coolant tray free from swarf.

INFEED ROLLER TABLE - ASSEMBLY NO: SM1271

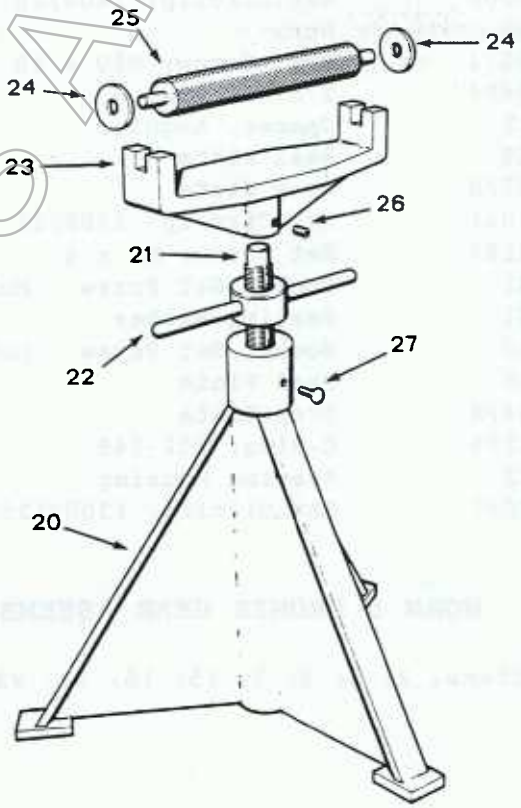
ITEM	PT NO	DESCRIPTION	NO OFF
1	6514	Roller Support	1
2	BO5716	Full Nut	4
3	BO5919	Washer	10
4	BO5573	Hex. Screw;	6
5	6515	Roller	4
6	6523	Support Plate	3
7	BO2133	Nylite Seal;	2
8	6517	Conveyor End Stop	1
9	SM1362	Roller Support Leg	1
10	BO5717	Full Nut	2
11	6359	Studding	2
12	6516	Support Foot	2

BAR STAND - ASSEMBLY: SM559

20	SM558/A	Stand	1
21	3869	Jacking Screw	1
22	SM557	Adjuster	1
23	3867	Roller Bracket	1
24	6553	Stop Plate	2
25	3866	Roller	1
26	BO5176	Set Screw;	1
27	BO5825	Thumb Screw;	1



INFEED ROLLER STOCK TABLE



STOCK STAND

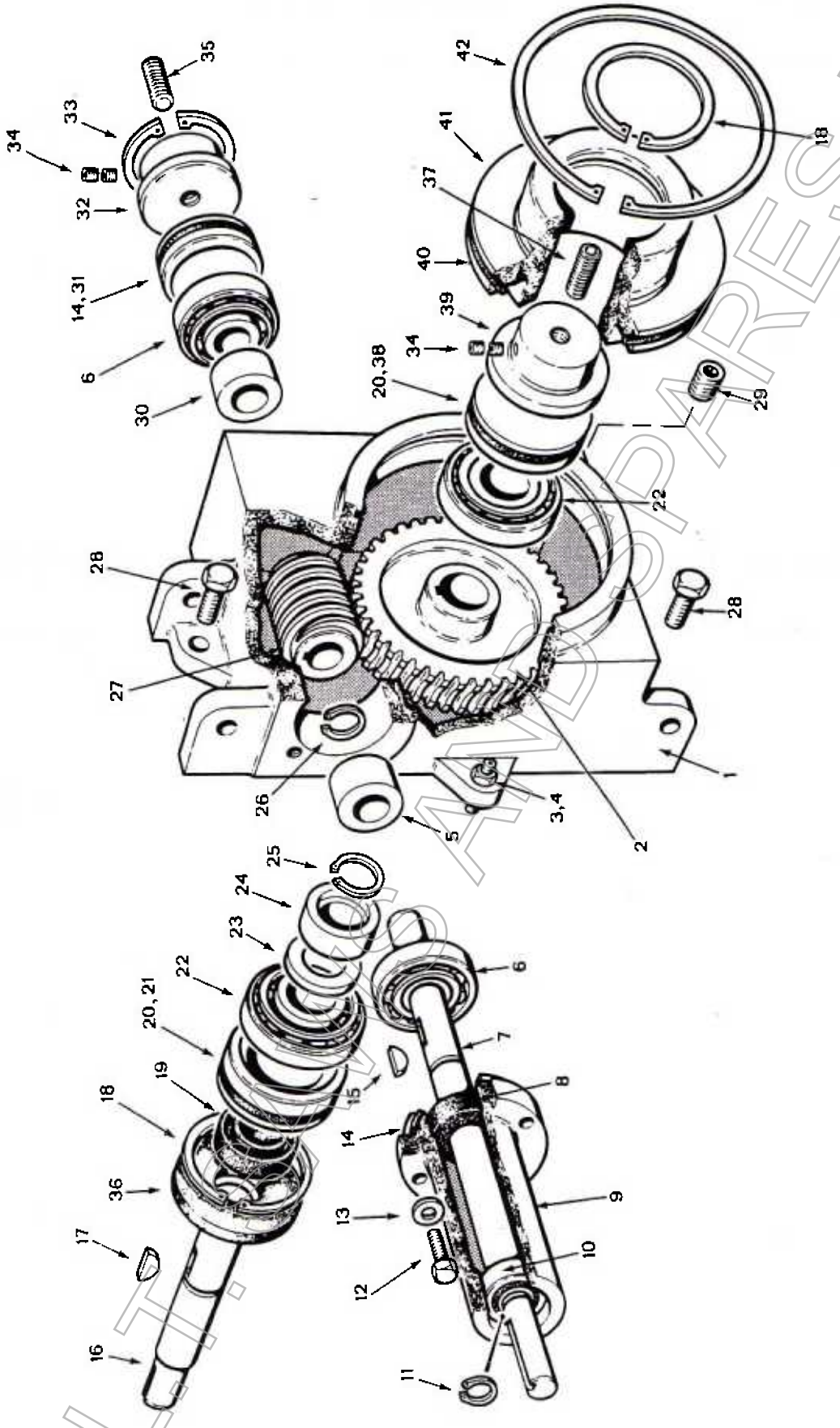
GEARBOX - ASSEMBLY NO: SM1254/B

ITEM	PT NO	DESCRIPTION	NO OFF
1	6261	Gearbox Housing	1
2	6269	Worm Wheel	1
3*	BO5209	Set Screw;	2
4	BO5715	Full Nut	2
5	8013	Spacer, Angular	1
6	BO2043	Angular Bearing;	2
7	6277	Drive Shaft	1
8	BO2128	Oil Seal;	1
9	6263	Extension Housing	1
10	BO2038	Bearing;	1
11	BO6002	Ext.Circlip;	1
12	BO5068	Cap Screw;	4
13	BO5943	Washer	4
14	BO2276	O-Ring;	2
15	BO6460	Key;	1
16	6276	Drive Shaft	1
17	BO6456	Key;	1
18	BO6042	Int.Circlip;	2
19	BO2129	Oil Seal;	1
20	BO2277	O-Ring;	2
21	6266	Seal Plate	1
22	BO2030	T/R Bearing;	2
23	6275	Spacer	1
24	6274	Spacer	1
25	BO6010	Ext.Circlip;	1
26	BO6008	Ext.Circlip;	1
27	6260	Worm	1
28*	BO5574	Hex. Screw;	2
29	BO2484	Plug	1
30	8012	Spacer, Angular	1
31	6268	Seal Plate	1
32	6267/B	Stop Plate	1
33	BO6041	Int.Circlip;	1
34	BO5193	Set Screw;	4
35	7641	Socket Set Screw - Modified	1
36	5861	Sealing Washer	1
37	7640	Socket Set Screw - Modified	1
38	6265	Seal Plate	1
39	6264/B	Stop Plate	1
40	BO2278	O-Ring;	1
41	6262	Bearing Housing	1
42	BO6047	Int.Circlip;	1

WORM & BRONZE GEAR ASSEMBLY SPARES KIT

Consists of Items: 2; 5; 6; 7; 15; 16; 17; 22; 25; 26; 27 & 30

* denotes that valid part does not belong to this assembly no.

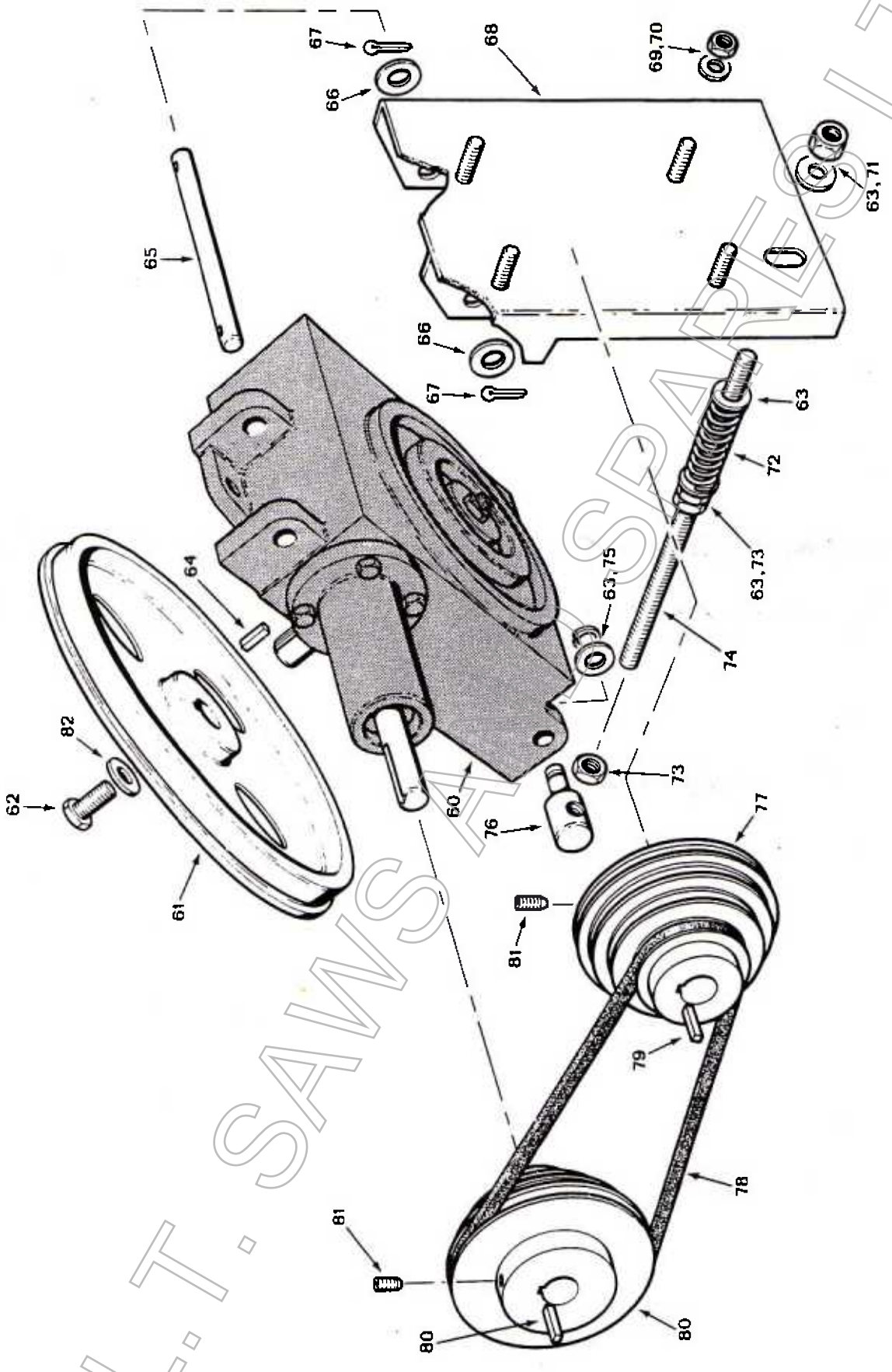


GEARBOX

MOTOR PLATFORM - ASSEMBLY NO: SM1864
&
SPEED CHANGE - ASSEMBLY NO: SM1870/A & B

ITEM	PT NO	DESCRIPTION	NO OFF
60	SM1254/B	ACB Gearbox;	1
61	6240/B	Drive Bandwheel	1
62*	BO5573	Hex. Screw;	1
63	BO5919	Washer	4
64	6405	Key	1
65	6280	Pivot Rod	1
66	BO5921	Washer	4
67	BO5814	Split Pin;	2
68	SM1249	Motor Mounting	1
69	BO5715	Full Nut	4
70	BO5944	Washer	4
71	BO5739	Press Nut	1
72	BO2222	Spring;	1
73	BO5716	Full Nut	3
74	6295	Studding	1
75	BO6004	Ext.Circlip;	1
76	6278	Pivot Pin	1
77	7959	Motor Pulley (50 Hz models)	1
	7927	Motor Pulley (60 Hz models)	1
78	BO2159	Polyflex Belt;	1
79	5920	Key;	2
80	7960	Gearbox Pulley (50Hz models)	1
	7928	Gearbox Pulley (60Hz models)	1
81	BO5190	Set Screw;	2
82	7734	Special Washer	1
NOT ILLUSTRATED			
	SM1769	Belt Guard	1
	7974	Motor Cover	1

* denotes that valid part does not belong to this assembly no.



MOTOR PLATFORM & DRIVE

BLADE GUIDES & GUARDS - ASSEMBLY NO: SM1251/A & B

ITEM	PT NO	DESCRIPTION	NO OFF
1*	6291	Retaining Nut	2
2*	6426	Bar Stop Adjuster	2
3*	BO5919	Washer	2
4*	BO5716	Full Nut	2
5*	BO2547	Handwheel;	2
6*	6241/B	Guide Arm	2
7*	BO5549	Hex. Screw;	3
8*	BO5564	Hex. Screw;	2
9*	BO5917	Washer	2
10*	6443	Thumb Nut	3
11*	SM1298	Outboard Blade Guard	1
12*	SM1299	Inboard Blade Guard	1
13	6400	Connector	1
14	6258/A	Guide Body	1
15	6258/B	Guide Body	1
16	BO5069	Cap Screw;	1
17	BO5046	Cap Screw;	4
18	BO5912	Washer	4
19	BO5061	Cap Screw;	2
20	BO5913	Washer	2
21	BO2035	Bearing;	2
22	6259	Spacer	1
23	BO5062	Cap Screw;	1
24	6393	Blade Guide Insert	2
25	6394	Conical Nut	2
26	6376	Washer	2
27	6409	Blade Support Insert	1
28	6410	Location Pin	1
29*	6646	Coolant Nozzle	1
30*	BO2252	O-Ring;	2

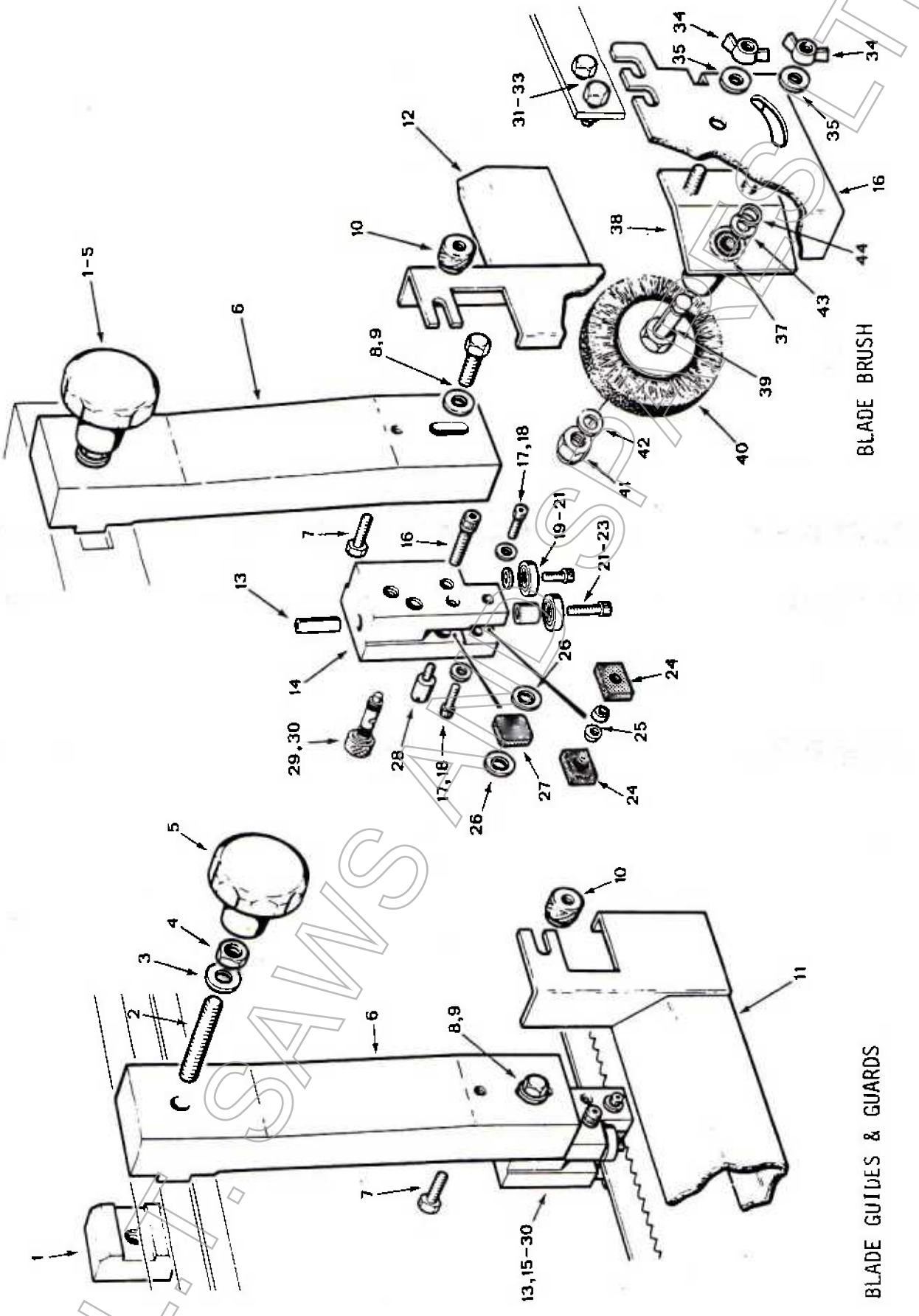
BLADE GUIDE SPARES KITS

INBOARD ITEMS : 8; 9; 13; 14; 16; 17 & 19 to 30
OUTBOARD ITEMS: 8; 9; 13; 15; 16; 17 & 19 to 30

BLADE BRUSH - ASSEMBLY NO: SM1354

31*	BO5560	Hex. Screw;	2
32*	BO5753	Locknut	2
33*	BO5944	Washer	2
34	BO5785	Wing Nut	1
35	BO5917	Washer	1
36	6483	Blade Brush Guard	1
37	BO2301	Bush;	2
38	SM1352	Brush Bracket Assembly	1
39	6480	Blade Brush Pivot	1
40	BO2565	Brush;	1
41	BO5774	Binx Nut	1
42	BO5915	Washer	1
43	BO5915	Washer	1
44	BO6019	Ext.Circlip;	1

* denotes these valid parts do not belong to this assembly no.



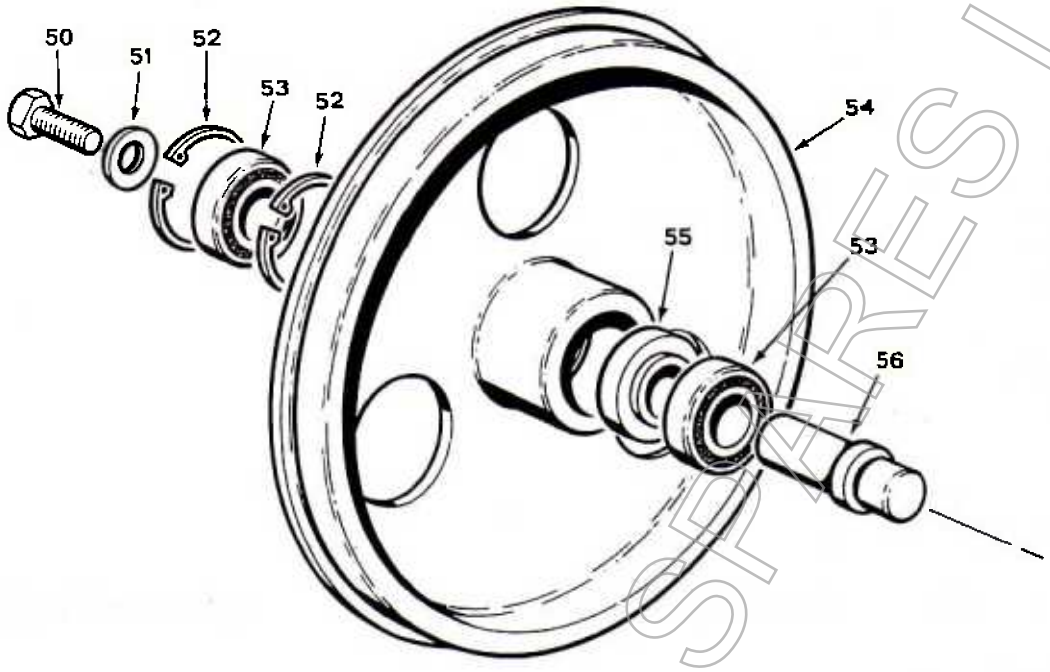
BANDWHEEL - TENSION END - ASSEMBLY NO: SM1264
&
TRACKING SPIGOT - ASSEMBLY NO: SM1581

ITEM	PT NO	DESCRIPTION	NO OFF
50*	BO5573	Hex. Screw;	1
51*	7734	Special Washer	1
52	BO6038	Int.Circlip;	2
53	BO2031	Bearing;	2
54	6240/A	Driven Bandwheel	1
55	4434	Spacer	1
56	6242	Bandwheel Spigot	1

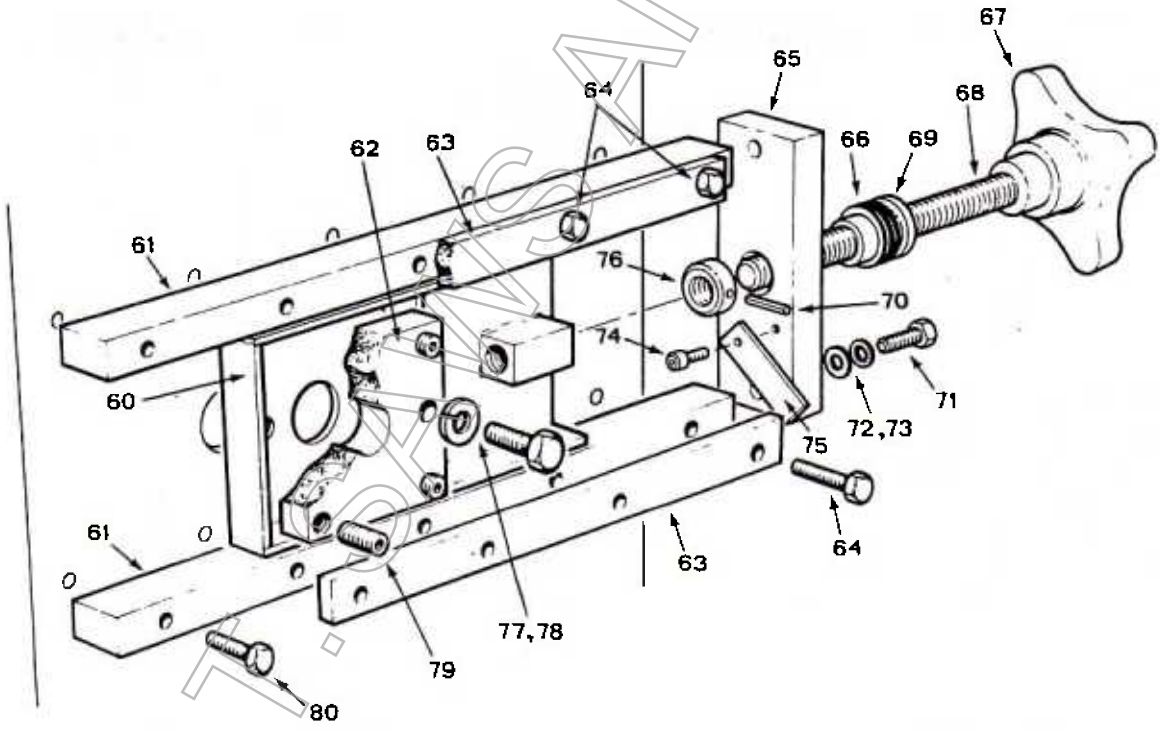
TENSIONING & TRACKING - ASSEMBLY NO: SM1863

60*	SM1257	Tracking Plate Assembly	1
61	6251/B	Tracking Plate Guide	2
62*	6243	Tracking Block	1
63	6254	Tracking Plate Retainer	2
64	BO5550	Hex. Screw;	8
65	8214	Tension Plate	1
66	BO2243	Disc Spring;	6
67	BO2548	Handknob;	1
68	8211	Tension Stud	1
69	8212	Sleeve	1
70	BO5349	Sel-loc;	1
71	BO5557	Hex. Screw;	2
72	BO5943	Washer	2
73	BO5915	Washer	2
74	BO5061	Cap Screw;	1
75	6098	Tension Gauge	1
76	8213	Collar	1
77	BO5563	Hex. Screw;	2
78	BO5944	Washer	2
79	BO5203	Set Screw;	4
80	BO5549	Hex. Screw;	2

* denotes that valid part does not belong to this assembly no.



BANDWHEEL - TENSION END



TENSIONING & TRACKING

INSTRUCTIONS FOR TRACKING THE SAW BLADE.

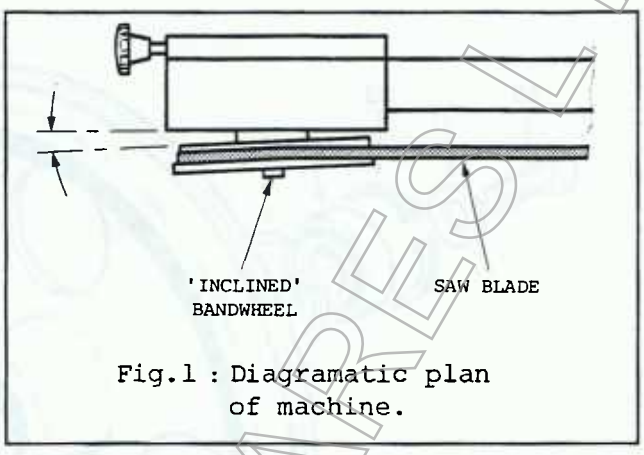


Fig.1 : Diagramatic plan of machine.

The twisting of the saw blade as it passes through the blade guides sets up an effect which causes the saw blade to run-off the bandwheels. This is counteracted by inclining both bandwheels inwards towards each other, this inclining of the bandwheels to align the saw blade is known as 'tracking' (see Fig.1). When the machine is tracking correctly the back of the blade should run .010"/.030" clear of the bandwheel flanges.All machines are correctly tracked before leaving the factory and should not require further adjustment.If however, the tracking is disturbed, proceed as follows:-
At front of machine, remove blade guards, and inboard and outboard guide assemblies and over arms as complete units.

NOTE:Do not disturb the setting of the blade guides relative to the over arms.

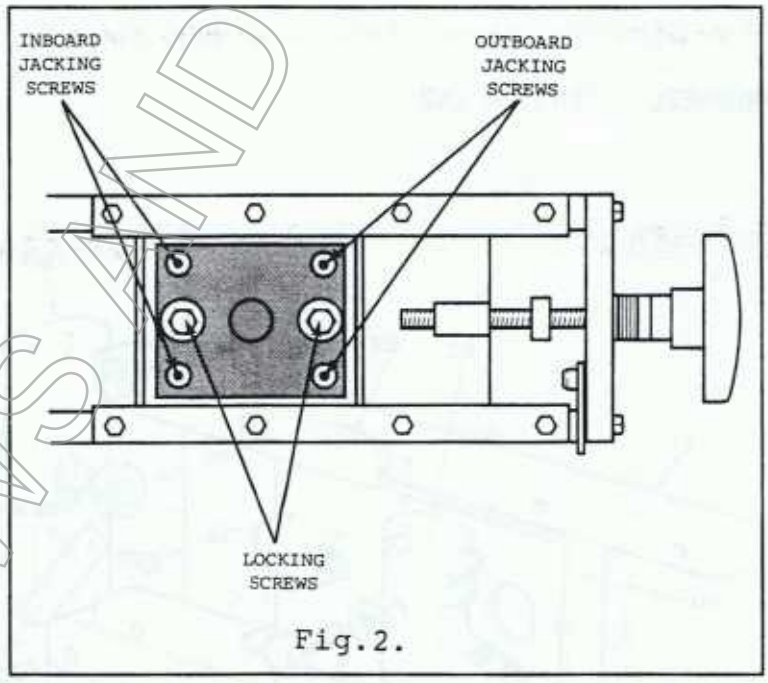


Fig.2.

Place saw blade on bandwheels with edge of saw blade 1/8" clear of bandwheel flange. Run machine at lowest speed for a few minutes, and then check the position of the saw blade on the bandwheel.
If the saw blade has moved up hard against the flanges of the bandwheel this will produce undue wear on the bandwheel flange, and burr the edge of the saw blade. To overcome this the bandwheel must be inclined to a lesser degree. At rear of machine slightly release outboard locking screw, and slacken off inboard locking screw (see Fig.2) and turn both inboard jacking screws clockwise until tensioning assembly moves slightly. If the saw blade has moved towards the rear edge of the bandwheel the saw blade will tend to ru@-off the bandwheel. To overcome this the bandwheel must be inclined more. Slightly release inboard locking screw, and slacken off outboard lockin@ screw, turn both outboard jacking screws clockwise until tensioning assembly moves slightly. After completing the adjustments, place the saw blade k'' clear of flange and run machine for a few minutes. Check the position of the saw Slade and if it is still not correct carry out adjustments again. With saw blade tracking correctly, fully tighten locking screws, replace over arms and guide assemblies complete, and blade guards.

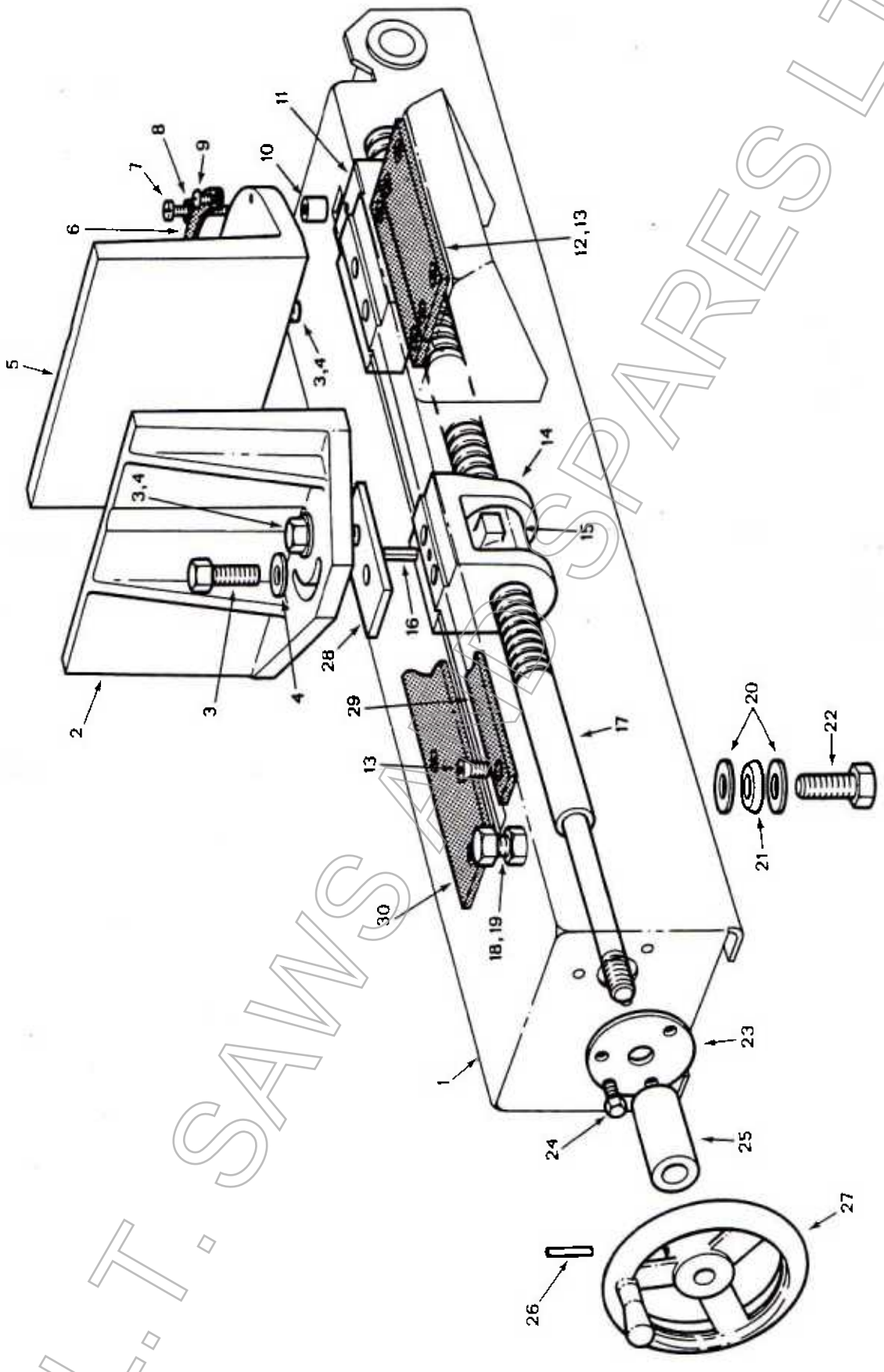
INSTRUCTIONS FOR TRACKING THE SAW BLADE - CONTINUED

If the setting of the blade guide assemblies have been disturbed, proceed as follows:-
Slacken off hex. hd. screws (Item 8 - see page 2) and lower guide assemblies until blade support insert (Item 27) just touches the top edge of blade. Check that there is a clearance between the guide inserts (Item 24) and the blade of 0.003". This can be adjusted by means of the 'wedglok soc. hd. cap screw(Item 16).

NOTE : If the gearbox is disturbed or replaced for any reason it may be necessary to track the drive bandwheel. This is carried out as described on page 5. Slacken off gearbox securing screws (Item 28 - see Section on Transmission) and adjust either inboard or outboard jacking screws (Items 3 & 4) as required and tighten securing screws. However, unless the gearbox has been disturbed it should not be necessary to alter this setting under normal circumstances.

VICE BED - ASSEMBLY NO: SM1862

ITEM	PT NO	DESCRIPTION	NO OFF
1	SM1247/B	Vice Bed Assembly	1
2	8238	Moving Vice Jaw	1
3	BO5573	Hex. Screw;	4
4	BO5919	Washer	4
5	8237	Fixed Vice Jaw	1
6	8235	Protractor Plate	1
7	BO5309	Slot Screw;	1
8	2812	Pointer	1
9	BO5476	Cheese Screw;	2
10	8240	Pillar	1
11	8239	Fixed Vice Nut	1
12	8179	Wear Plate	1
13	BO5264	C/Sk Screw;	18
14	6248	Vice Nut Carrier	1
15	7958	Vice Nut - solid	1
16	BO5352	Sel-loc;	1
17	6247/B	Vice Screw	1
18	BO5563	Hex. Screw;	1
19	BO5715	Full Nut	1
20	BO5921	Washer	8
21	BO2126	Nylite Seal;	4
22	BO5577	Hex. Screw;	1
23	6246	Vice Thrust Plate	1
24	BO5592	Hex. Screw;	3
25	6253/B	Spacer	1
26	BO5349	Sel-loc;	1
27	8262	Handwheel;	1
28	8180	Spacer	1
29	8177	Wear strip - narrow	1
30	8178	Wear strip - wide	1



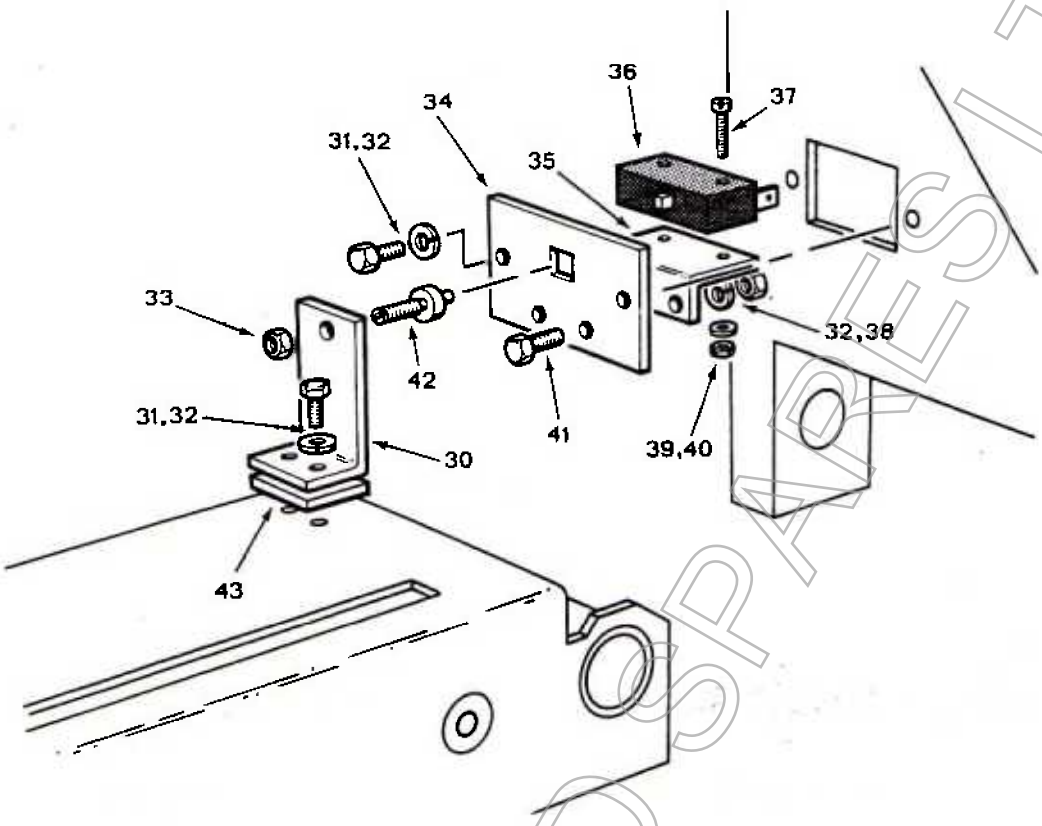
VISE BED

HEAD DOWN MICRO-SWITCH - ASSEMBLY NO: SM1865

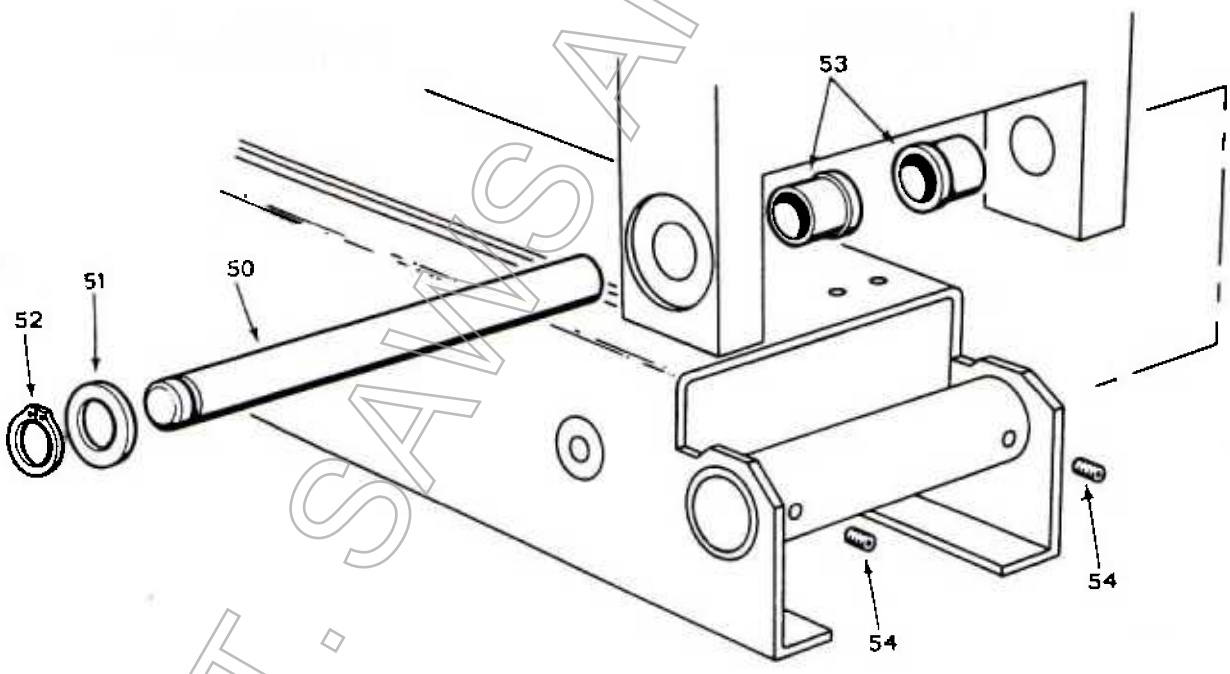
ITEM	PT NO	DESCRIPTION	NO OFF
30	6236	Switch Stop Adjusting Bracket	1
31	BO5592	Hex. Screw;	4
32	BO5942	Washer	6
33	BO5714	Full Nut	1
34	6238	Cover Plate	1
35	6237	Micro Switch Mount	1
36	BO1347	Micro Switch;	1
37	BO5304	Slot Screw;	2
38	BO5713	Full Nut	2
39	BO5910	Washer	2
40	BO5711	Full Nut	2
41	BO5546	Hex. Screw;	2
42	6239/A	Switch Adjustment Screw	1
43	8095	Micro Switch Bracket Packing	1

HEAD PIVOT - ASSEMBLY NO: SM1866

50	6252	Pivot Pin	1
51	BO5923	Washer	1
52	BO6004	Ext.Circlip;	1
53	BO2334	Bush Flange;	2
54	BO5200	Set Screw;	2



HEAD DOWN MICRO-SWITCH



HEAD PIVOT

HYDRAULIC CYLINDER - ASSEMBLY NO: SM1253/B

FITTED TO MACHINES FROM SERIAL NO: 83979 ONWARDS

ITEM	PT NO	DESCRIPTION	NO OFF
1	5980	Cylinder Cap	1
2	BO2279	O-Ring;	1
3	6286/B	Piston Rod	1
4	BO2037	Rod End;	1
5*	6292	Shouldered Screw - upper	1
6	BO5264	C/Sk Screw;	2
7	BO2219	Spring;	1
8*	SM1252	Cylinder Welded Assembly	1
9	6025	Washer	1
10	BO5755	Locknut	1
11	BO2103	Steel Ball; 8mm Diameter	1
12	5826	Compression Spring	1
13	BO2274	U Ring;	1
14	6288	Piston Nut	1
15*	6293	Shouldered Screw - lower	1
16	BO2443	Male Stud;	2
17	6287	Piston	1
18	6322	Collar	1

NOT ILLUSTRATED

BO2466	Valve;	1
BO2442	Standpipe Elbow;	1
6321	Cover Plate	1
BO5775	Binx Nut	1
BO5919	Washer	1

DISMANTLING INSTRUCTIONS

If the head fails to stay up when the control valve is closed it is possible that the `U' ring or non-return valve assembly needs replacing. To dismantle cylinder, proceed as follows:-

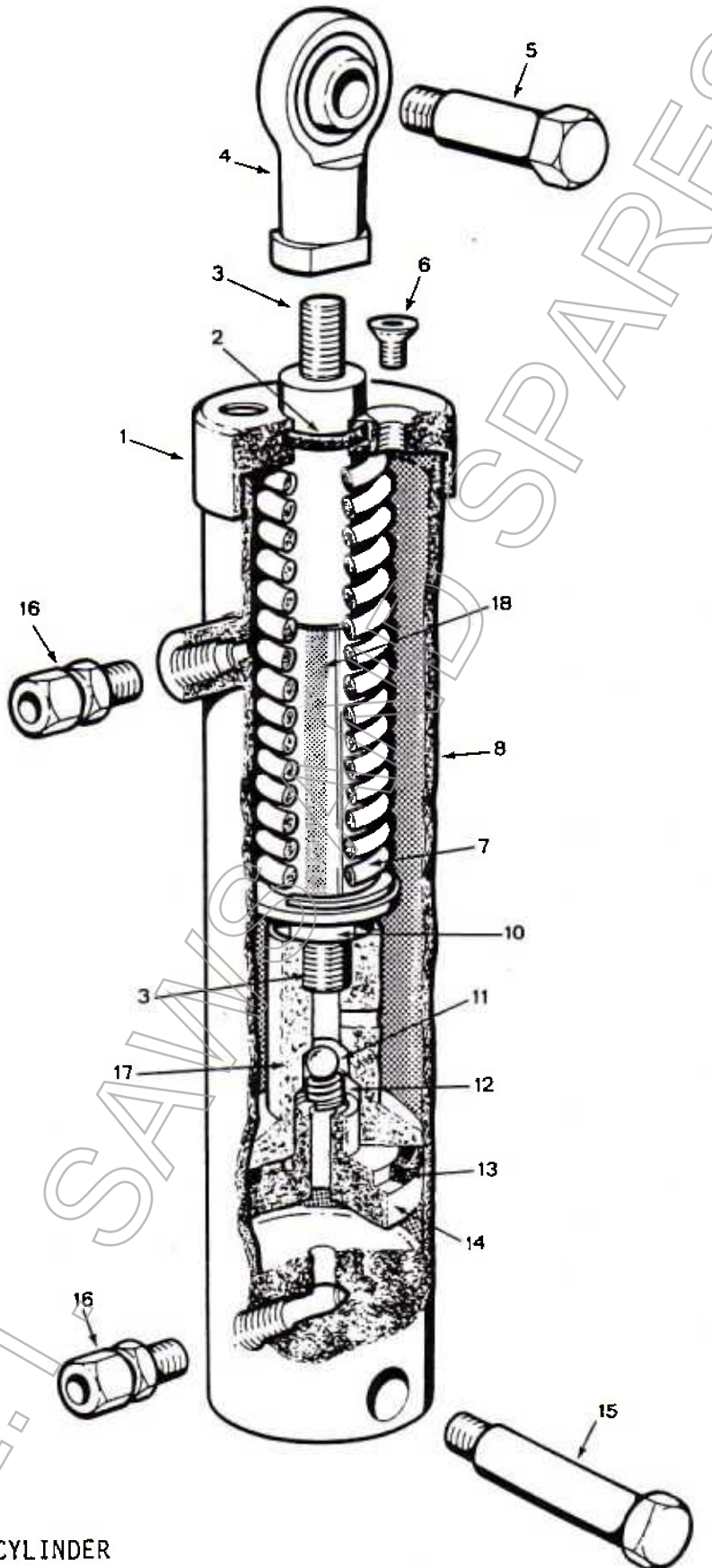
IMPORTANT: Do not remove rose bearing (Item 4) as this will disturb the setting of the compression spring.

Remove both shoulder screws (Items 5 & 15), slacken off nuts on stud couplings (Item 16), disconnect both hydraulic pipes and empty cylinder of oil.

Unscrew cylinder cap (Item 1) and pullout complete inner assembly. Remove piston nut (Item 14) by unscrewing anti-clockwise. With piston nut removed, check `U' ring (Item 13) for wear and check that the steel ball (Item 11) seats cleanly replacing parts where necessary.

Replace complete inner assembly into cylinder body , re-connect hydraulic pipes and tighten coupling nuts. Fill cylinder with oil and pump piston a few times to remove any air from the system, then top up with oil to within 1/4" from the top of cylinder body. Replace cylinder cap and secure to machine using shoulder screws.

* denotes that valid part does not belong to this assembly no.



HYDRAULIC CYLINDER

COOLANT ATTACHMENT - ASSEMBLY NO: SM1273/D

ITEM	PT NO	DESCRIPTION	NO OFF
1*	SM1759	Coolant Tank	1
2	BO6378	Cleartube;	1.1
3	6505	L/G Pump Bracket	1
4	BO2464	Pump; 60Hz models	1
	BO2465	Pump; 50Hz models	1
5		NOT USED	
6	BO6379	Cleartube;	0.05
7	BO2489	Stem Adaptor;	1
8	BO6377	Cleartube;	0.25
9		NOT USED	
10	BO5592	Hex. Screw;	3
11	BO5913	Washer	3
12	BO2488	Y Stem;	1
13	BO6377	Cleartube;	0.5
14	BO2581	Hose Clip;	1
15	BO6380	Cleartube;	0.1
16	6646	Coolant Nozzle	2
17	BO2252	O-Ring;	4
18	BO5929	Star Washer	2

COOLANT PUMP MAINTENANCE AND INSTRUCTIONS

This pump is designed to circulate mild liquids and is cooled by either sitting in liquid (submerged) or circulating liquid through the head.
IMPORTANT: DO NOT LET THE PUMP RUN DRY OR DAMAGE MAY RESULT.
This pump is a sealed unit factory serviced with oil and should not require further lubrication.
IMPORTANT: DO NOT OPEN THE SEALED PORTION OF THE UNIT OR REMOVE ANY SCREWS OTHER THAN INDICATED IN FIGURE 1.
The only maintenance needed on the pump may be that from time to time the pump may become clogged by swarf or chips. To clean out the pump proceed as follows:-
DISCONNECT FROM MAINS SUPPLY. Remove plastic screw at front of pump then remove three screws (indicated in Figure 1) and take off pump head.
IMPORTANT: DO NOT REMOVE ANY OTHER SCREWS WHICH MAY BE EXPOSED.
Clean out the swarf or chips which may have clogged the impeller taking care to avoid the painted surface.
Turn the impeller by hand to make sure that it is free.
Re-connect the pump to the mains supply to make sure the impeller turns freely. If it does then disconnect pump from mains supply and replace pump head, three screws and plastic screen. Re-connect pump to mains.

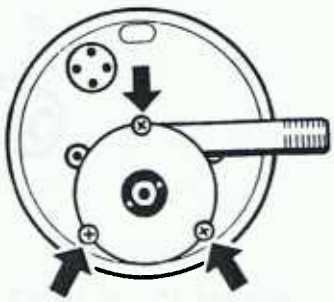
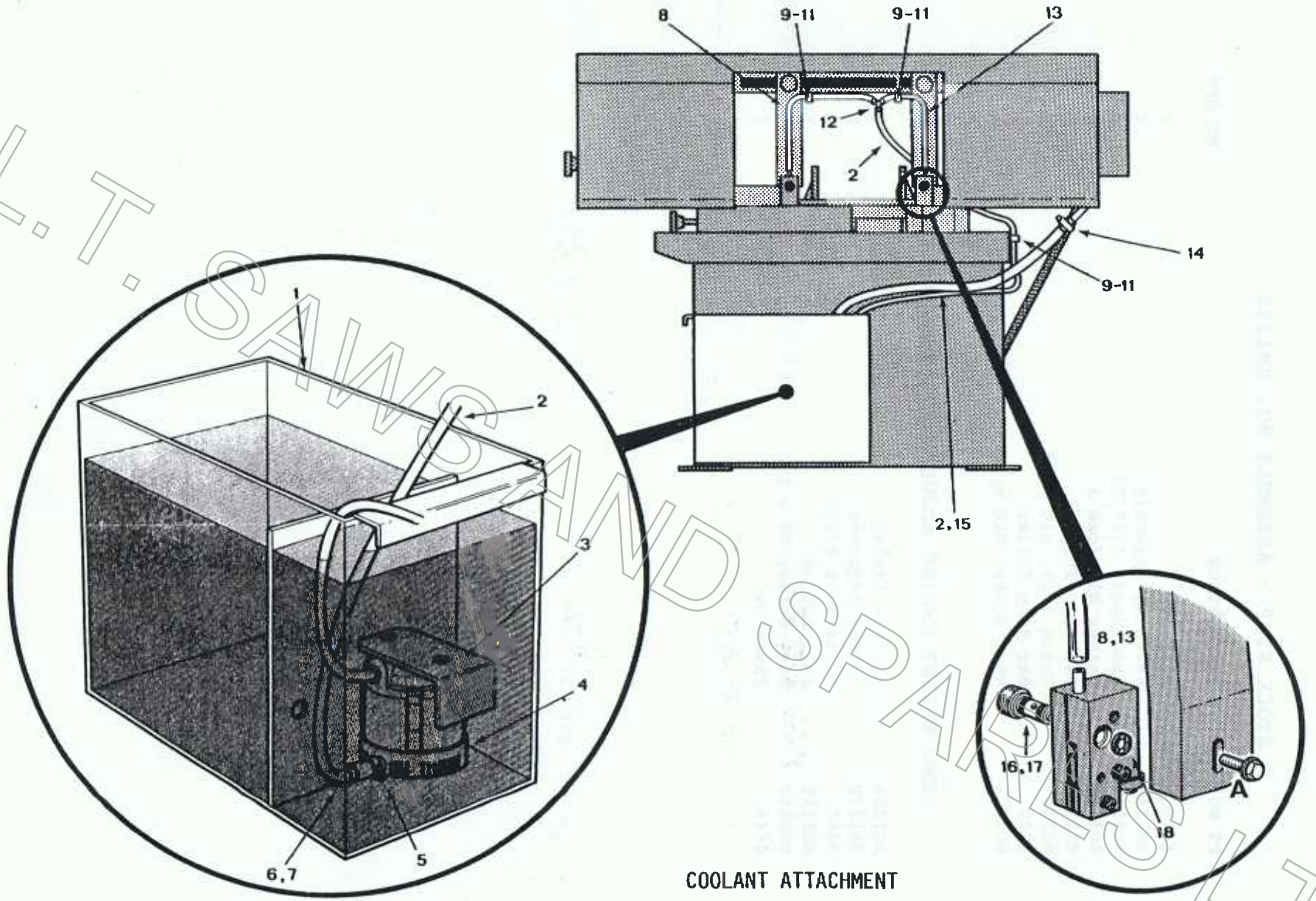


Fig.1.

* denotes that valid part does not belong to this assembly no.



COOLANT ATTACHMENT

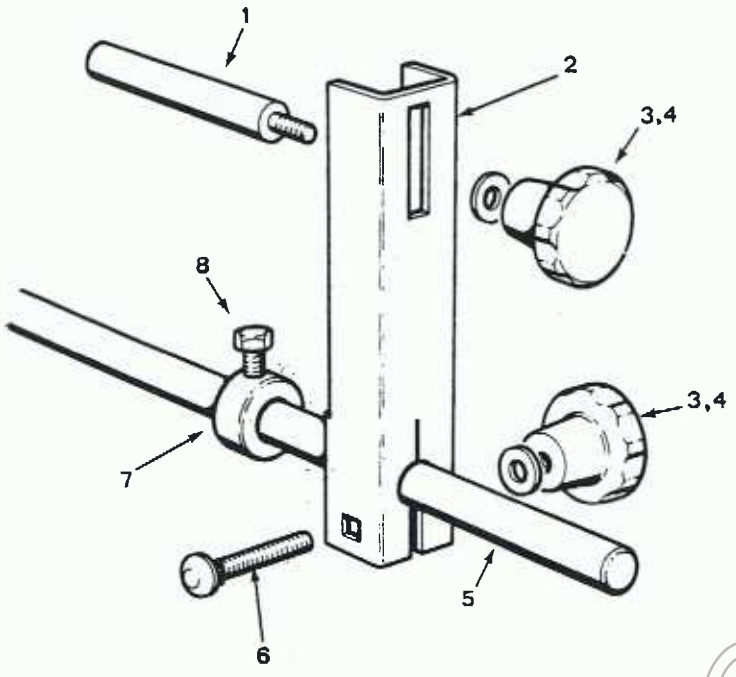
STOCK STOP - ASSEMBLY NO: SM1263

ITEM	PT NO	DESCRIPTION	NO OFF
1	6419	Stop Bar	1
2*	SM1262	Bar Stop Assembly	1
3	BO2547	Handwheel;	2
4	BO5919	Washer	2
5*	8225	Bar Stop Shaft	1
6	BO5627	Coach Bolt;	1
7*	6627	Bar Stop Collar	1
8*	BO5571	Hex. Screw;	1

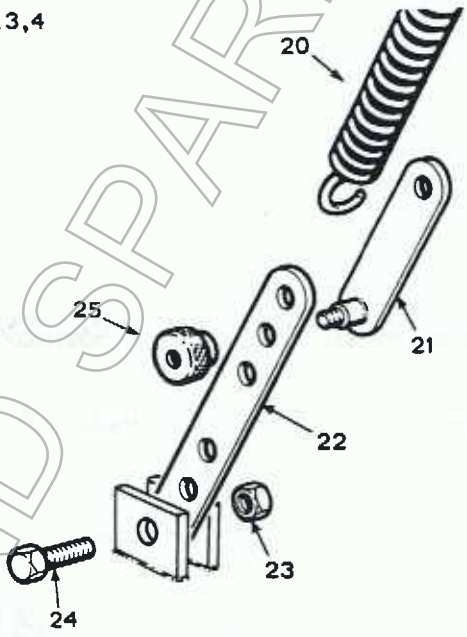
HEAD WEIGHT SPRING ADJUSTMENT - ASSEMBLY

20	BO2224	Spring;	1
21	SM1370	Spring Adjuster	1
22	6460	Adjustment Plate	1
23	BO5715	Full Nut	1
24	BO5563	Hex. Screw;	1
25	6444	Thumb Nut	1

* denotes that valid part does not belong to this assembly no.



STOCK STOP



HEAD WEIGHT
SPRING ADJUSTMENT