STARTRITE

STARTRITE MACHINES

OPERATORS MANUAL

STARTRITE H280M4
HORIZONTAL BANDSAW

BO10401 16/08/01

ISSUE 4

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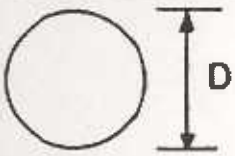
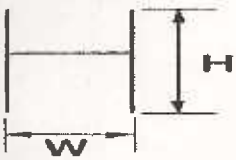
CONTENTS

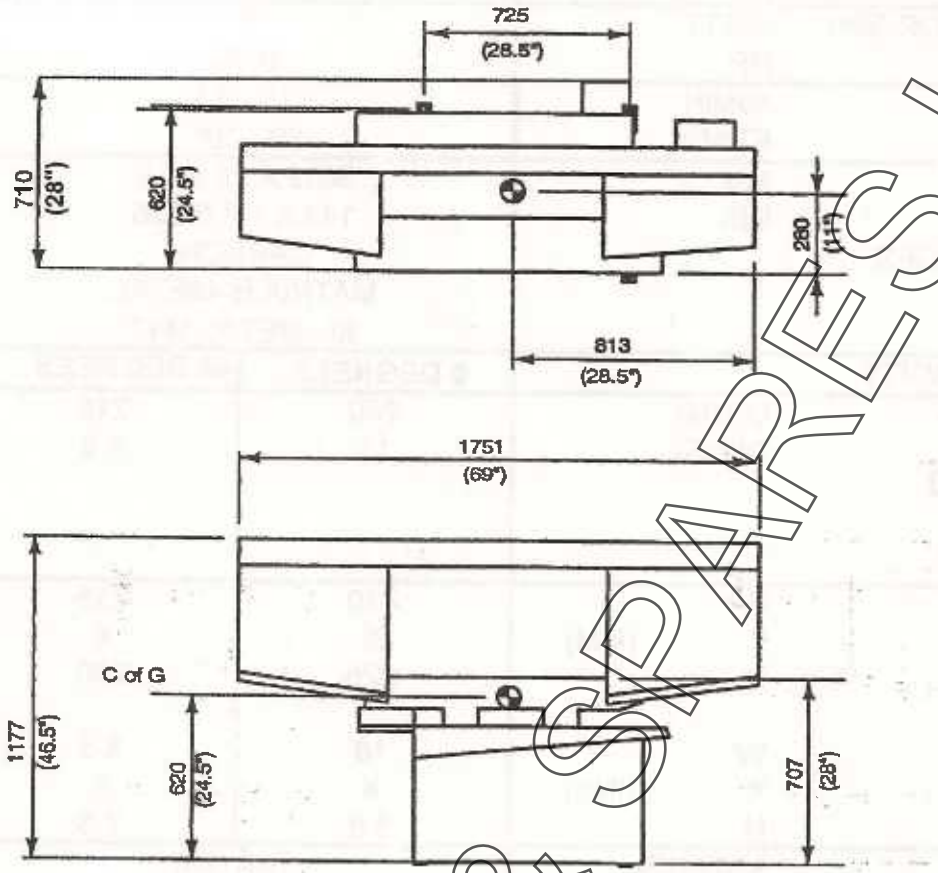
MODEL NUMBER		H280M4	
DRIVE MOTOR 3PH	KW HP	1.1 1.5	
COOLANT MOTOR 3PH	WATT HP	7 0.09	
BLADE SPEED RANGE	M/MIN FT/MIN	15 - 92 50 - 300	
BLADE SIZE SUPAFLEX BLADES	MM INS	3632 X 25 X 0.9 143 X 1 X 0.035 CARBON MATRIX BI-METAL BI - METAL M42	
CUTTING CAPACITY		**0 DEGREES**	**45 DEGREES**
	D(MM) D(INS)	280 11	215 8.5
	W X (MM) H W X (INS) H	410 X 225 16 X 8.8	215 X 200 8.5 X 7.8
BED HEIGHT TOTAL HEIGHT TOTAL WIDTH TOTAL LENGTH	MM (INS) MM (INS) MM (INS) MM (INS)	707 (28) 1177 (47) 710 (28) 1751 (70)	
NET WEIGHT	KG (LBS)	355	(788)
COOLANT TANK CAPACITY RECCOMENDED COOLANT STARCOOL 209		30 LITRES (6 1/2 IMP.GAL). AVAILABLE IN 5 LITRES CONTAINERS PART NUMBER: BO7021	
ELECTRICAL SUPPLY (EXAMINE RATING PLATE TO ESTABLISH REQUIRED ELECTRICAL SUPPLY).		380 - 415 VOLTS / 3 PHASE / 50HZ OR 208 - 230 VOLTS / 3 PHASE / 60HZ OR 440 - 480 VOLTS / 3 PHASE / 60HZ	

NOISE TEST RECORD

THIS INFORMATON IS PROVIDED IN ACCORDANCE WITH THE HEALTH & SAFETY EXECUTIVE NOISE AT WORK REGULATIONS 1989

MODEL	H280M4
MOUNTING CONDITION	FREE STANDING ON CONCRETE FLOOR
BACKGROUND READING db(A)	61
BLADE SPEED M/MIN (FT/MIN)	61 (200)
CUTTING (MATERIAL) MILD STEEL (DIA. 60MM)	75

SPECIFICATION/FOUNDATION PLAN - STARTRITE H280M4



NOTE: ALL DIMENSIONS ARE APPROXIMATE

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

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

BEFORE OPERATING THIS MACHINE ENSURE THAT:

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

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

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

Loose clothing is either removed or fastened and jewellery removed.

Suitable jigs are available for use where appropriate.

The working area is clean and unobstructed.

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

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

WHEN SETTING, CLEANING AND MAINTAINING THIS MACHINE:

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

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

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

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

KEY

1 Blade Tension Control
2 Electrical Control Panel
3 Quick Release Vice
4 Counter-Balance Spring Tension Control
5 Adjustable Guide Arms
6 Coolant Nozzles

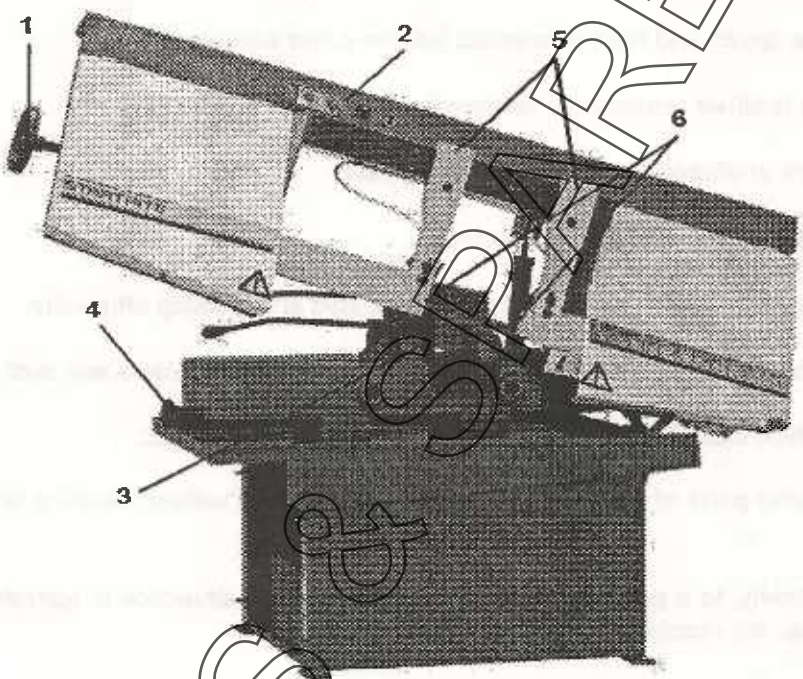


fig.2

Electrical Control Panel

9 Feed Control
10 Emergency Stop Button
11 Start Button
12 Coolant Control

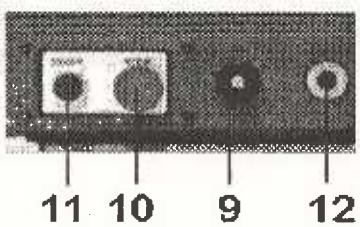


fig.3

GENERAL LAYOUT OF H280M4
HORIZONTAL BANDSAW

INSTALLATION

Ensure that the following are supplied with your machine.

One off:

6mm Allen Key
10mm Allen Key
24mm Spanner
Operating Manual
CE Certificate

To transport the machine use forklift truck with the forks placed as close as possible to wooden transport blocks.

Site the machine with adequate working space for ease of use.

The machine stand is provided with four feet which can be used for fixing the machine. These accept 12mm (1/2") diameter bolts (not supplied). Before fixing the machine down, ensure the machine is located on a firm, level surface.

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

Remove the transit bracket clamping the bow 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 25 litres (5 gallons) of a good grade of soluble oil diluted about 20 parts water to 1 part oil.

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

ELECTRICAL INSTALLATION

Check that the electrical supply is suitable for the machine, see machine rating label. At all times ensure that the machine is isolated from the mains supply before making any electrical connections or adjustments.

Remove the cover of the electrical control box and pass supply leads through cable gland located on the side the rear of the control box.

For three phase supply, connect supply leads to terminals L1, L2 & L3 of the isolator and earth lead to 'E' (earth) terminal. If a neutral supply is standard, then the neutral should be connected to 'N' (neutral) terminal. (N.B. this has no electrical bearing on the machine and is supplied only as a convenient connector).

IN ALL CASES THE MACHINE MUST BE EFFECTIVELY EARTHED.

A three phase motor may run in either direction, therefore, raise the bandwheel covers and check that the bandwheels run in an anti-clockwise direction. If necessary, interchange any two supply leads to reverse rotation.

The service of a competent electrical engineer must be obtained if any doubt regarding electrical installation of this machine.

GENERAL

Check blade tension frequently and adjust as necessary.
Clean out swarf tray frequently.

WEEKLY MAINTENANCE

Check level of coolant in coolant tank. If necessary top up with a good grade of soluble oil in accordance with manufacturer's instructions.
Clean and lubricate all miscellaneous moving parts.
Check level of hydraulic fluid and top up if necessary.
Check condition and tension of vee-belt and replace or adjust as necessary (4 speed machines only).

YEARLY MAINTENANCE

Drain coolant tank. Clean tank and pump. Refill with approximately 30 litres (6 1/2 gallons) of clean coolant.

NOTE: The gearbox is sealed for life and should not require maintenance.

APPROVED LUBRICANTS	
GENERAL LUBRICATION	SHELL Tellus 68 GULF Service 51 Oil MOBIL Vactra or D.T.E Heavy Medium Oil TEXACO Ursa p20 Oil
GREASE POINTS	SHELL R2 All Purpose Grease GULF Gulfcrown No:3 Grease MOBIL Mobilplex 48 Grease TEXACO Regal Starfak Premium 3 Grease
HYDRAULIC SYSTEM	SHELL T37 Oil GULF Harmony 43AW Oil MOBIL D.T.E. 24 Oil TEXACO Rando HAD or HD32 Oil

COOLANT PUMP MAINTENANCE

With the exception of occasionally removing swarf from the pump impellor, no maintenance is required. In order to clean the pump, proceed as follows:-

Disconnect pump from mains supply.

Remove plastic screen at front of pump, then remove three indicated in Fig. 7 screws indicated and take off pump head.

IMPORTANT : DO NOT REMOVE ANY OTHER SCREWS WHICH MAY BE EXPOSED.

Clean out any swarf or chips which may have clogged the impeller, taking care to avoid the painted surface. Turn the impeller by hand to make sure it is free.

Re-connect the pump to the mains supply to make sure the impeller turns freely. If it does, disconnect pump from mains supply and replace pump head, three screws and plastic screen. Re-connect pump to mains supply. If the pump does not then run freely, it should be replaced.

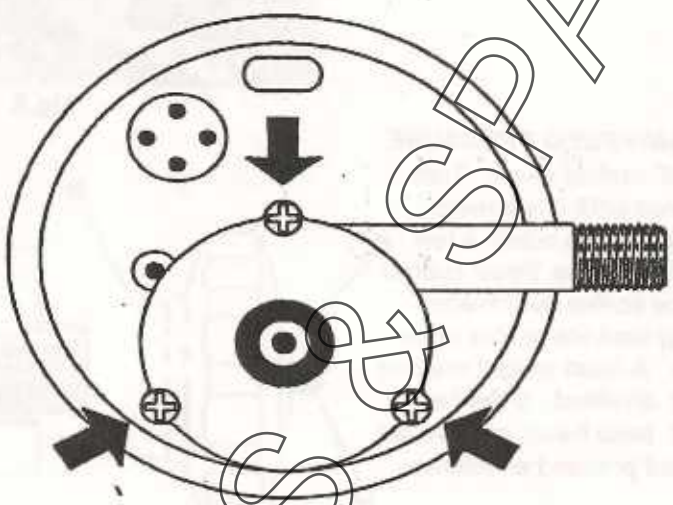


Fig. 7

NOTE: REMOVE ARROWED SCREWS ONLY

FITTING A BLADE

To remove saw blade, slacken off blade tension by means of blade tensioning handle (see fig.4)
Raise bandwheel covers and remove blade guards and slide saw blade out of guides to remove from machine. Place saw blade over bandwheels with teeth facing towards pivot and insert saw blade carefully into guide assemblies. Check that back edge of saw blade is against flanges of bandwheels before tensioning blade.

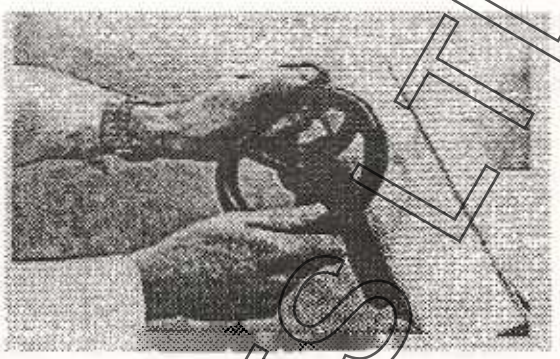


Fig. 4

BLADE TENSIONING

To obtain correct blade tension, turn blade tensioning knob until collar allows setting slip to become engaged (see Fig.5). Check blade tension periodically as the saw blade may stretch.

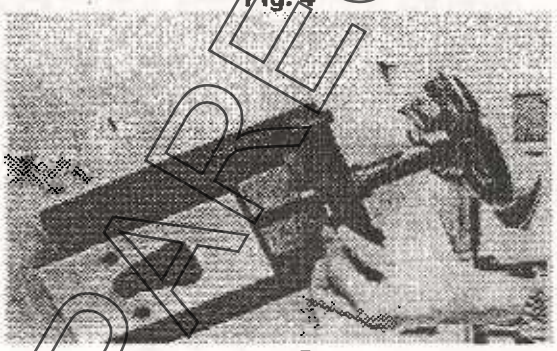


Fig.5

CHECKING & SETTING SAW FEED PRESSURE

Raise head and close 'Feed' control valve. Turn control knob 'B' anti-clockwise until it is against retaining washer 'C'. Lower head to within a few inches of the machine bed and close 'Feed' control valve. Place spring-balance scales over blade tension handle. Hold spring-balance scales open 'Feed Speed' control valve. A head weight reading of 14.5kg (32lbs) should be obtained. If the head weight requires adjustment, raise head, remove set screw and locking nut 'E' and proceed as follows:-

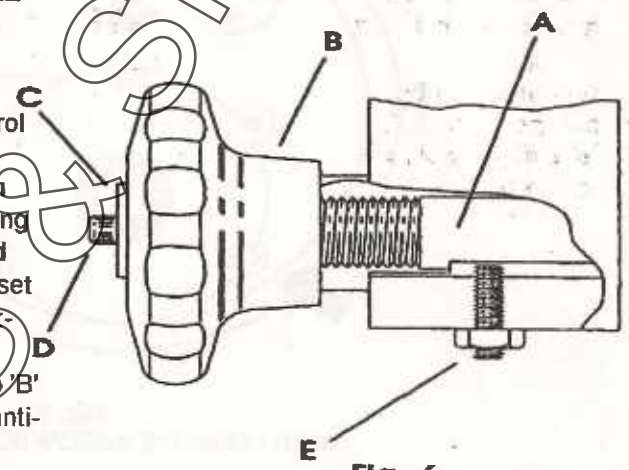


Fig. 6

For HEAVIER head weight turn control knob 'B' anti-clockwise which will turn threaded shaft 'A' anti-clockwise and increase the head weight.

For LIGHTER head weight place socket wrench into socket cap screw 'D' and turn clockwise to turn threaded shaft 'A' and decrease the head weight.

Re-check head weight as before. If it is now correct, screw in set screw 'E' making it just locate into keyway in shaft and lock in place. When correctly set the control knob 'B' should give a working range of approximately 1.8kg (4lbs) MINIMUM - 14.kg (32lbs) MAXIMUM. When no further adjustment of the spring is possible it should be replaced.

SETTING

Before making any adjustments to the machine ensure that the bow is raised in order to prevent risk of damage.

BLADE GUIDE ARMS

These should be set as close as possible to the workpiece but positioned so as to clear the vice jaws as the bow is lowered. Adjustment is made by loosening the clamping bolts located at the top of the blade guide arms (see Fig. 8) and sliding them along the guide bar. When corrctly positioned retighten the clamping bolts.

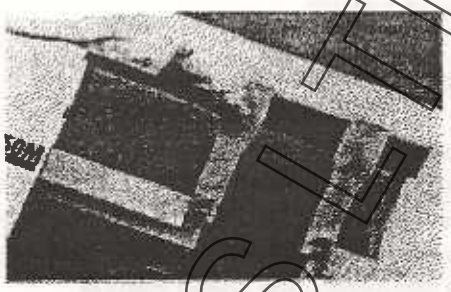


Fig.8

VICE JAWS

To adjust the position of the fixed vice jaw, loosen the retaining bolts and adjust to the required angle. The angle is indicated by means of a graduated scale fitted to the vice jaw. When positioned correctly retighten the retaining bolt (see Fig.9). To clamp the workpiece in the vice, release the vice jaw by rotating the vice jaw calamping lever and slide it forward until the face of the vice jaw is touching the workpiece. Rotate the vice jaw clamping lever fully (see Fig.10) to lock the vice jaw to the machine bed. Rotate the workpiece clamping lever fully clockwise (see Fig.11) to clamp the workpiece in the vice. The clamping pressures are predetermined. To release the workpiece rotate the workpiece clamping lever anticlockwise.

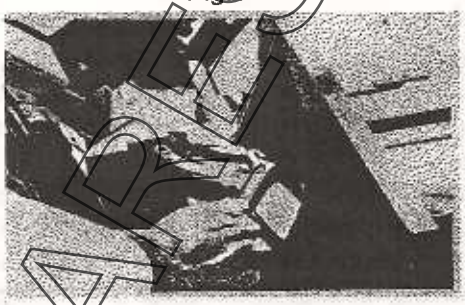


Fig.9

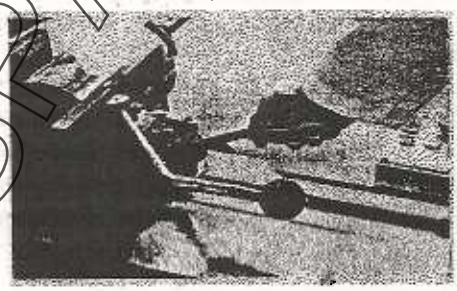


Fig.10

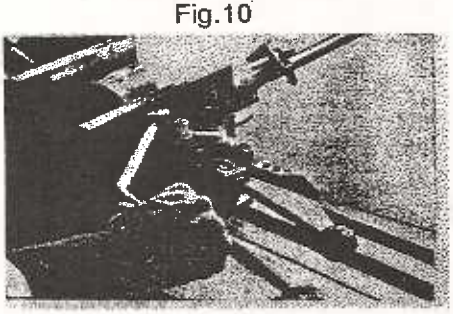


Fig.11

BLADE SPEED

5 Speed Machines Only:

Select appropiate blade speed by swinging aside the belt guard, pushing the motor towards the spring and placing the vee belt in the appropiate pulley grooves (see speed plate on the machine). Replace belt guard (see Fig.12) after completing the speed change.

Fig.12

FEED SPEED

Select the appropiate saw feed speed by rotating the feed speed adjustment knob located on the control panel
(see Fig.3). To increase the feed speed rotate the knob anti-clockwise. To decrease the feed speed rotate the knob clockwise. As a guide, the saw feed speed should be set so that the bow descends at the same speed that the material is being removed. Further, the speed should be adjusted so as to prevent damage to the blade when it first conacts the workpiece, or whilst cutting workpieces that have abupt changes in section or thin sections.

FEED PRESSURE (HEAD WEIGHT)

The saw feed pressure is controlled by means of the counter balance spring tension control knob located on the left hand end of the machine bed (see Fig.2). The saw feed pressure is set to the maximum on assembly. To reduce the feed pressure turn the control knob clockwise. As a guide saw feed pressure should be increased as the material machineability decreases.

CUTTING

Before cutting commences ensure that all necessary adjustments have been made, all guards are in position, the workpiece is firmly clamped in the vice and that the sawblade is clear of the workpiece. The bow can be lowered by opening the feed speed control valve (see fig 3).

Fig. 13

To commence sawing press the 'on' button on the control panel (see Fig. 3). The blade will move at the speed set and the bow will descend at the rate set. When the cut is complete the blade will stop automatically.

To repeat the cut, lift the bow until the blade is clear of the workpiece.

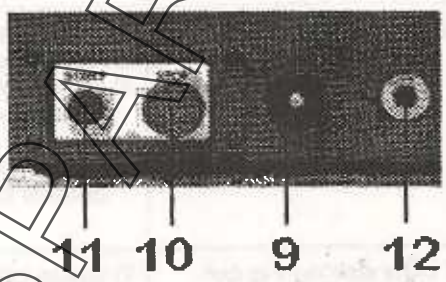


Fig. 3

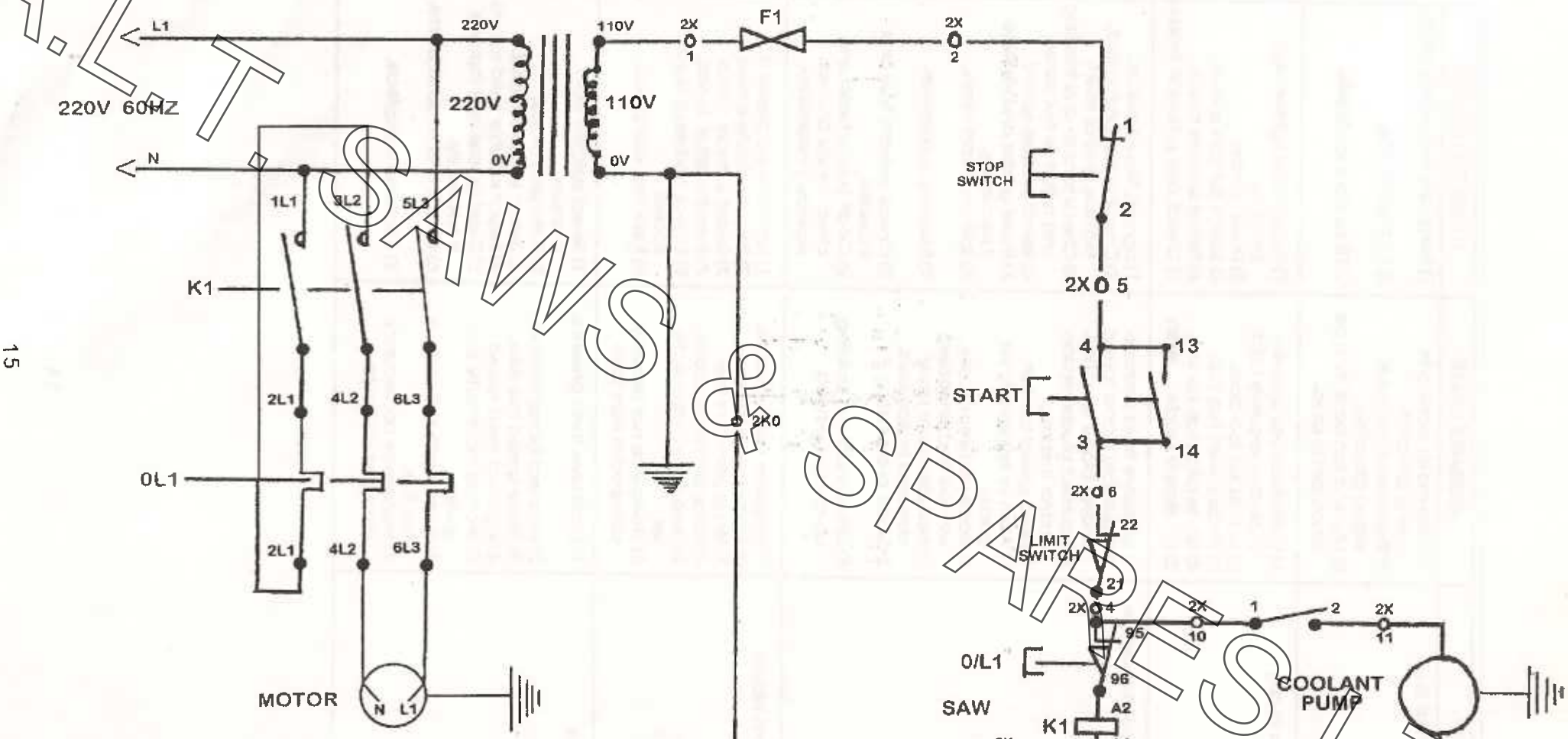
The coolant is contolled by the coolant selector switch on control panel. The rate of flow can be adjusted by moving the flow adjusting lever fitted to the blade guides (see Fig. 13). To turn the coolant off, select the 'Off' position on the coolant selector switch (see Fig. 3).

In the event of an emergency the 'Emergency Stop' button (item 10 fig.3), fitted to the control panel or to the, should be pressed.
To recommence sawing, the emergency stop button must first be released by rotating clockwise and then it will function as normal. When stopped during cutting the descent of the bow will automatically cease. This will prevent damage to blade and workpiece. Should the power fail, the machine will stop sawing. On the reconnection of power, the machine will not recommence sawing until the 'on' button is pressed.

FAULT	PROBABLE CAUSE	SUGGESTED REMEDY
Blade teeth dull rapidly.	1) Blade overheating. 2) Blade speed too fast. 3) Feed speed too slow. 4) Blade pitch too coarse. 5) Feed pressure too light. 6) Material too hard for type of sawblade being used.	1) Check coolant flow and increase. 2) Select suitable speed. 3) Select suitable speed. 4) Select blade with suitable pitch. 5) Increase feed pressure. 6) Fit suitable sawblade.
Sawblade back damaged.	1) Material too hard for type of sawblade being used. 2) Tracking incorrect. 3) Carbide insert missing from one guide assembly.	1) Fit suitable sawblade. 2) Check and set tracking. 3) Check inserts and replace.
Sawblade stalls in cut.	1) Excessive feed pressure. 2) Feed speed too fast. 3) Incorrect belt tension and/or worn belt or pulleys. 4) Incorrect blade speed and/or blade selection.	1) Reduce pressure. 2) Select suitable feed speed. 3) Check and replace belt and pulleys as necessary, re-tension. 4) Check blade type and replace as necessary, reset blade speed.
Head bounces during cut.	1) Blade joint improperly welded and annealed. 2) Teeth missing from sawblade. 3) Feed pressure too light. 4) Bandwheels or pulleys loose.	1) Split weld and re-join. 2) Replace sawblade. 3) Select suitable feed pressure. 4) Check and re-tighten bandwheels and/or pulleys.
Cutting time increases.	1) Blade teeth have become dull. 2) Feed pressure too light. 3) Incorrect blade speed.	1) Replace and/or re-sharpen blade. 2) Select suitable feed pressure. 3) Select suitable blade

FAULT	PROBABLE CAUSE	SUGGESTED REMEDY
Sawblade will not cut.	1) Drive motor running in wrong direction. 2) Blade teeth facing in wrong direction. 3) Material too hard for type blade being used.	1) Swap any two supply leads. 2) Refit sawblade. 3) Fit suitable sawblade.
Blade vibrates in cut.	1) Workpiece not properly seated or securely held. 2) Guides set too close. 3) Blade speed too fast. 4) Blade pitch too coarse. 5) Insufficient blade tension.	1) Reseat and tighten vice properly. 2) Reset guides. 3) Select suitable speed. 4) Select suitable blade. 5) Check and retension blade.
Premature blade breakage.	1) Excessive feed pressure. 2) Unsuitable blade speed and/or blade selection. 3) Incorrect blade tension and/or tracking. 4) Feed speed too fast. 5) Worn or incorrectly set guides. 6) Blade joint improperly welded and annealed. 7) Workpiece not firmly clamped in vice jaws. 8) Blade overheating. 9) Chips and swarf building up on bandwheels.	1) Lighten feed pressure. 2) Check blade and speed, replace and/or reset. 3) Check tension and tracking and adjust as necessary. 4) Select suitable speed. 5) Reset guides and replace if necessary. 6) Split weld and rejoin. 7) Reclamp workpiece. 8) Check coolant flow and increase. 9) Clean bandwheels and check blade brushes, replace if necessary.
Teeth torn from blade.	1) Excessive feed pressure. 2) Blade speed too slow. 3) Blade pitch too fine. 4) Blade pitch too coarse. 5) Feed speed incorrectly set. 6) Workpiece not securely clamped in vice jaws.	1) Lighten feed pressure. 2) Select suitable speed. 3) Select suitable blade. 4) Select suitable blade. 5) Check and reset feed speed. 6) Reclamp workpiece.
Crooked cuts.	1) Excessive feed pressure. 2) Incorrect blade tension. 3) Blade speed too slow. 4) Incorrect feed speed. 5) Worn or incorrectly set guides. 6) Blade teeth dull or pitch too fine. 7) Workpiece not securely clamped in vice jaws.	1) Select suitable feed pressure. 2) Retension blade. 3) Select suitable speed. 4) Select suitable feed speed. 5) Reset guides and replace if necessary. 6) Check and replace blade. 7) Reclamp workpiece.

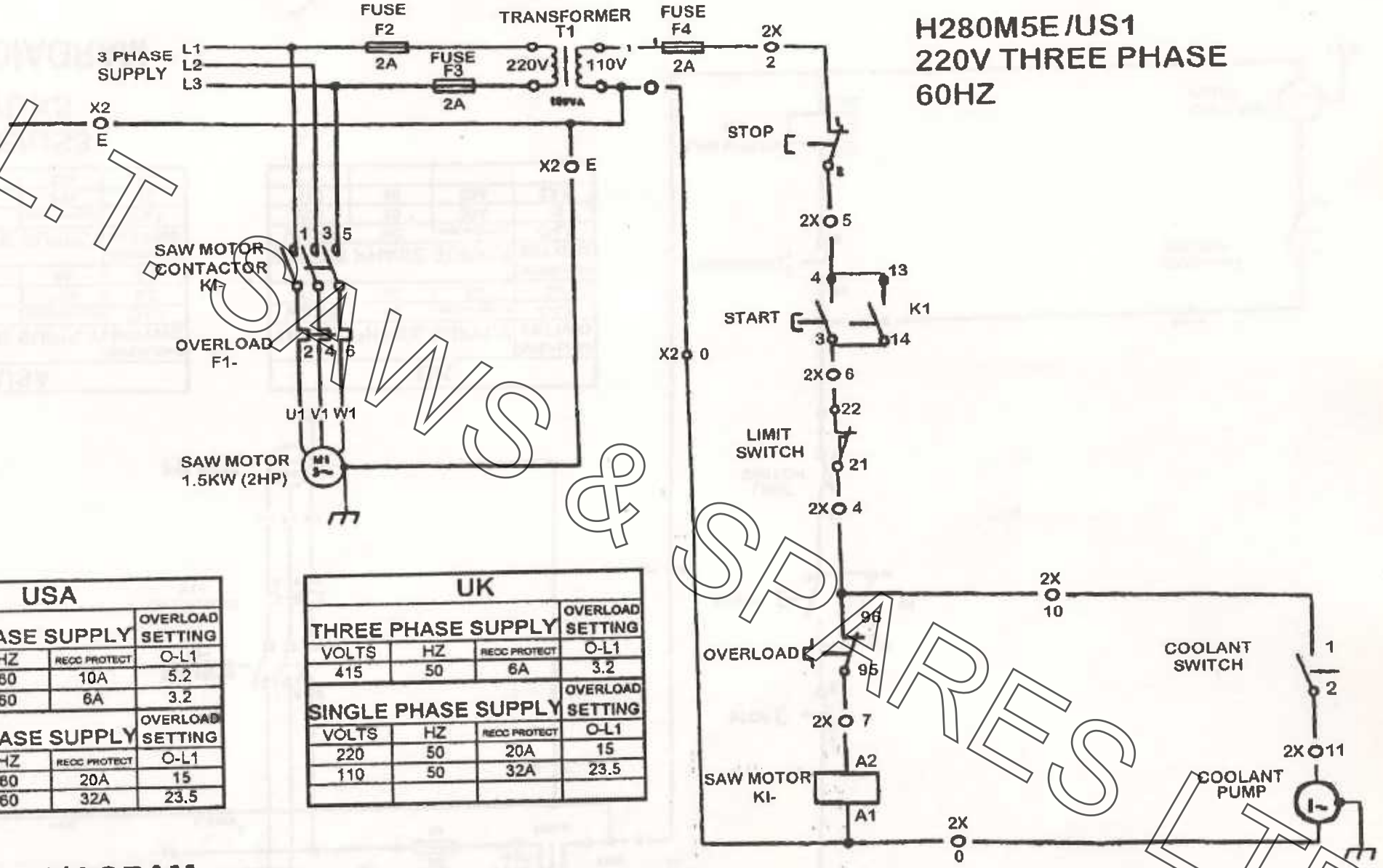
H280M5E/US4 220V SINGLE PHASE



USA			
THREE PHASE SUPPLY			OVERLOAD SETTING
VOLTS	HZ	RECC PROTECT	O-L1
220	60	10A	5.2
208-440	60	6A	3.2
SINGLE PHASE SUPPLY			OVERLOAD SETTING
VOLTS	HZ	RECC PROTECT	O-L1
220	60	20A	15
110	60	32A	23.5

UK			
THREE PHASE SUPPLY			OVERLOAD SETTING
VOLTS	HZ	RECC PROTECT	O-L1
415	50	6A	3.2
SINGLE PHASE SUPPLY			OVERLOAD SETTING
VOLTS	HZ	RECC PROTECT	O-L1
220	50	20A	15
110	50	32A	23.5

H280M5E/US1
220V THREE PHASE
60HZ



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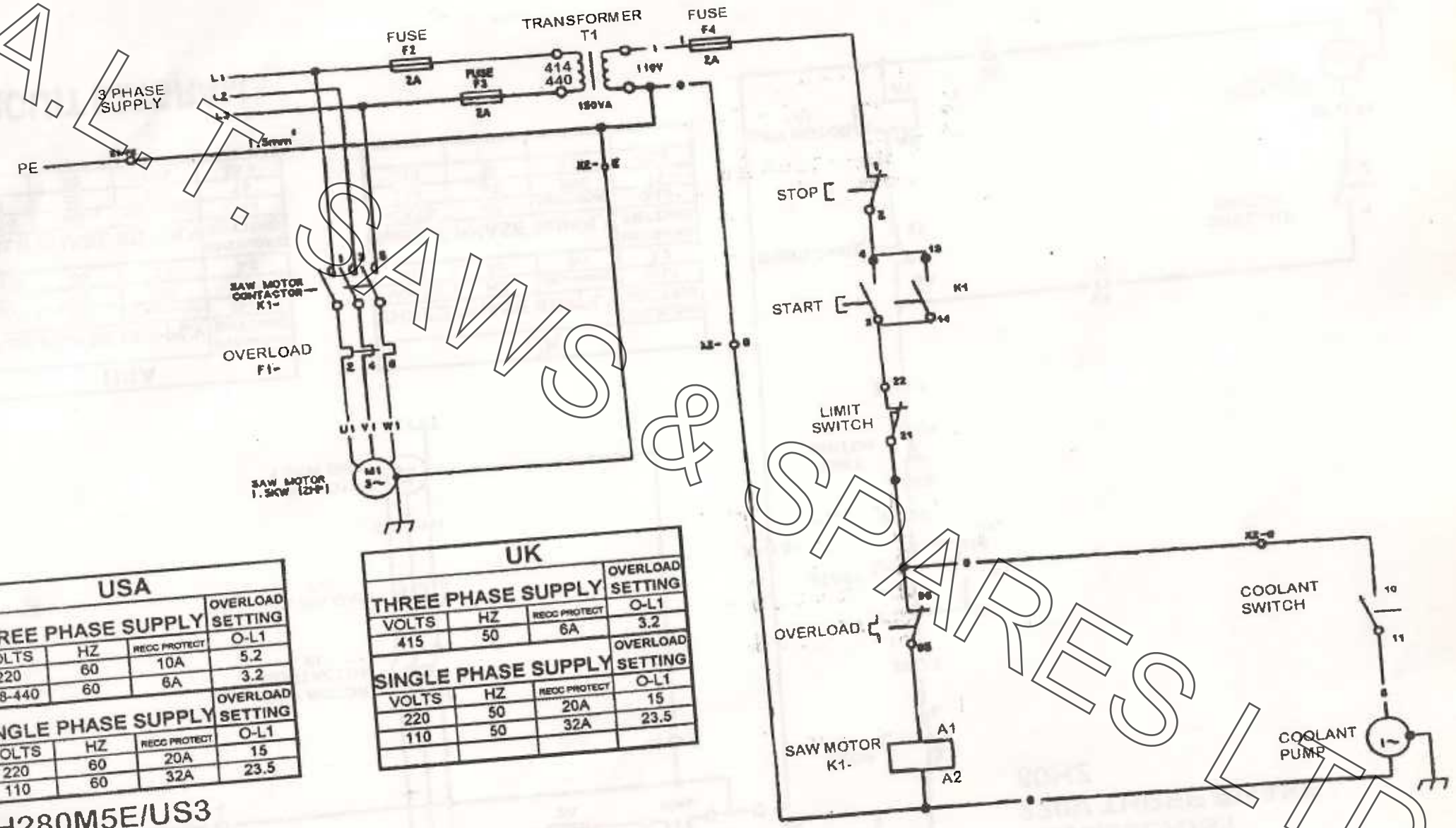
CIRCUIT DIAGRAM



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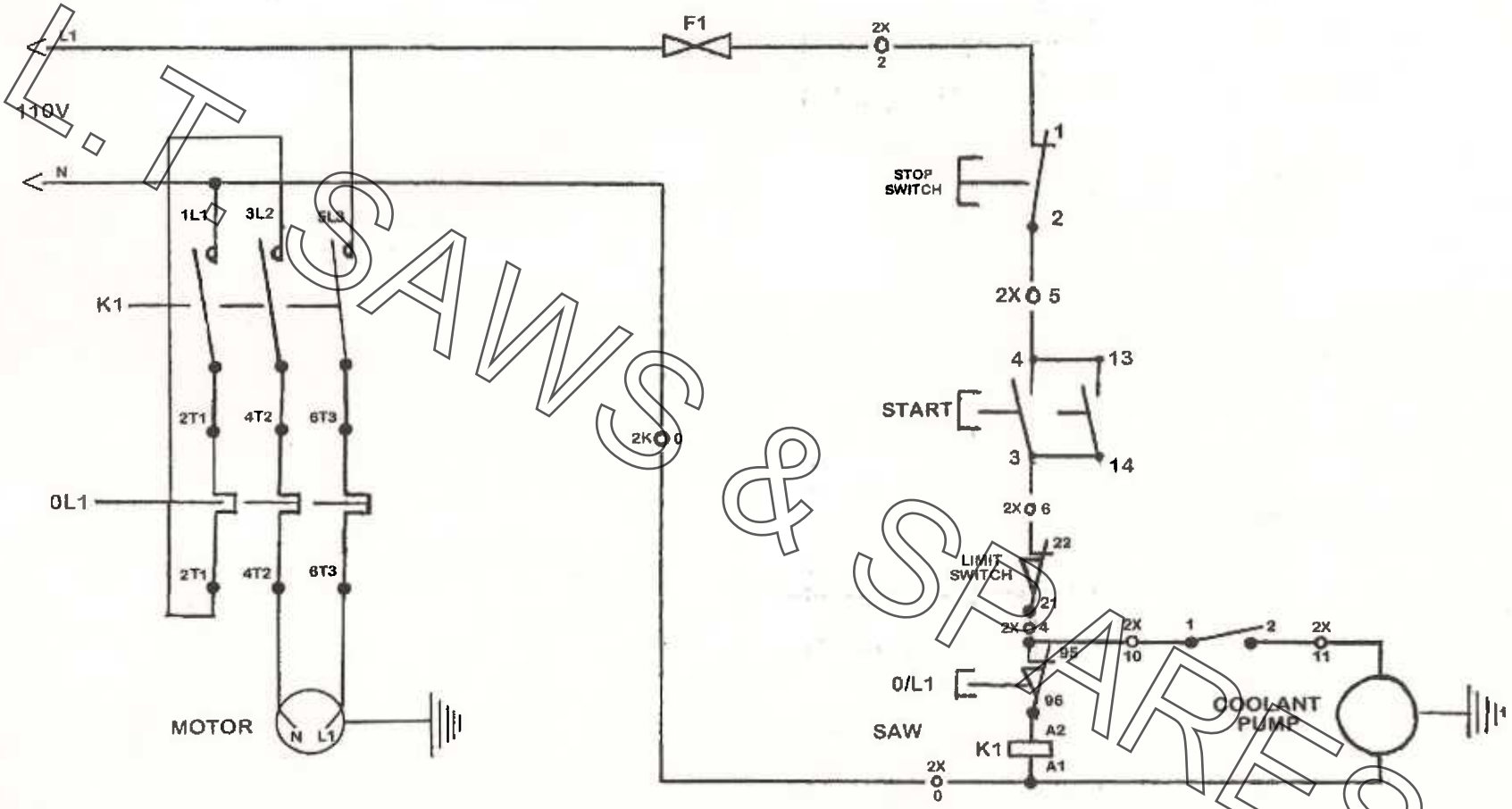
VOLTS	HZ	RECC PROTECT	O-L1
220	50	20A	15
110	50	32A	23.5

H280M5E/US3
H280M4/UK3

CIRCUIT DIAGRAM

H280M5E/US2 110V SINGLE PHASE
H280M4/UK2 110V SINGLE PHASE



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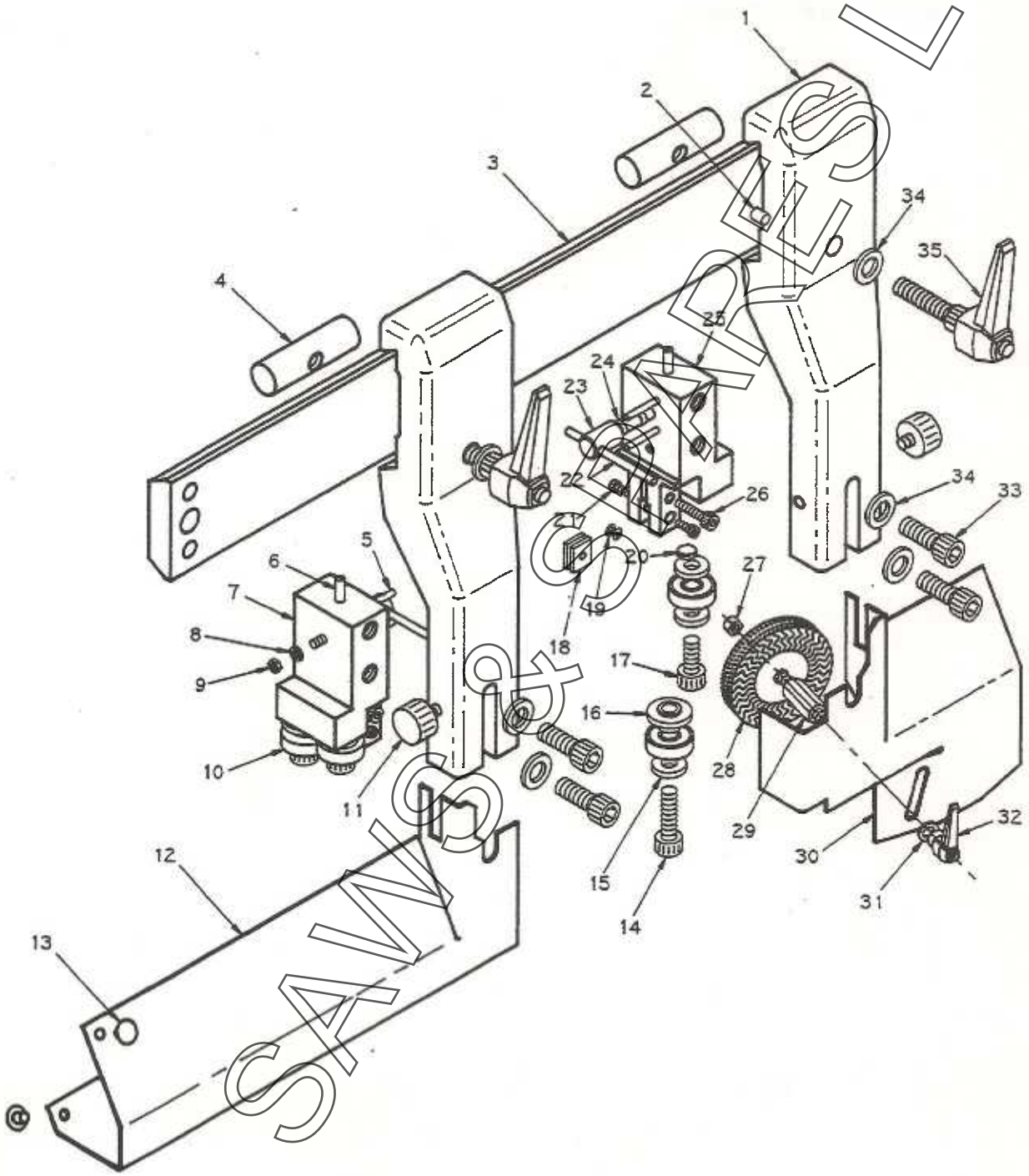
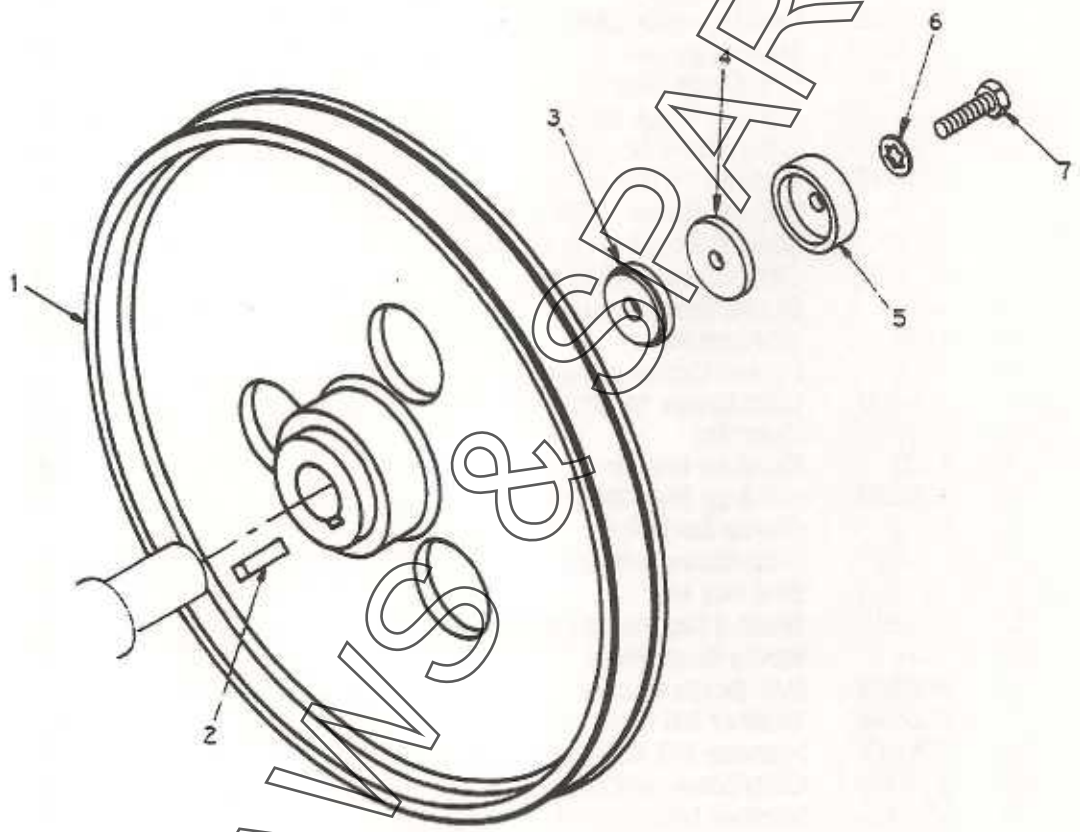


BLADE GUIDES, GUARDS AND BLADE BRUSH

BLADE GUIDES, GUARDS & BLADE BRUSH

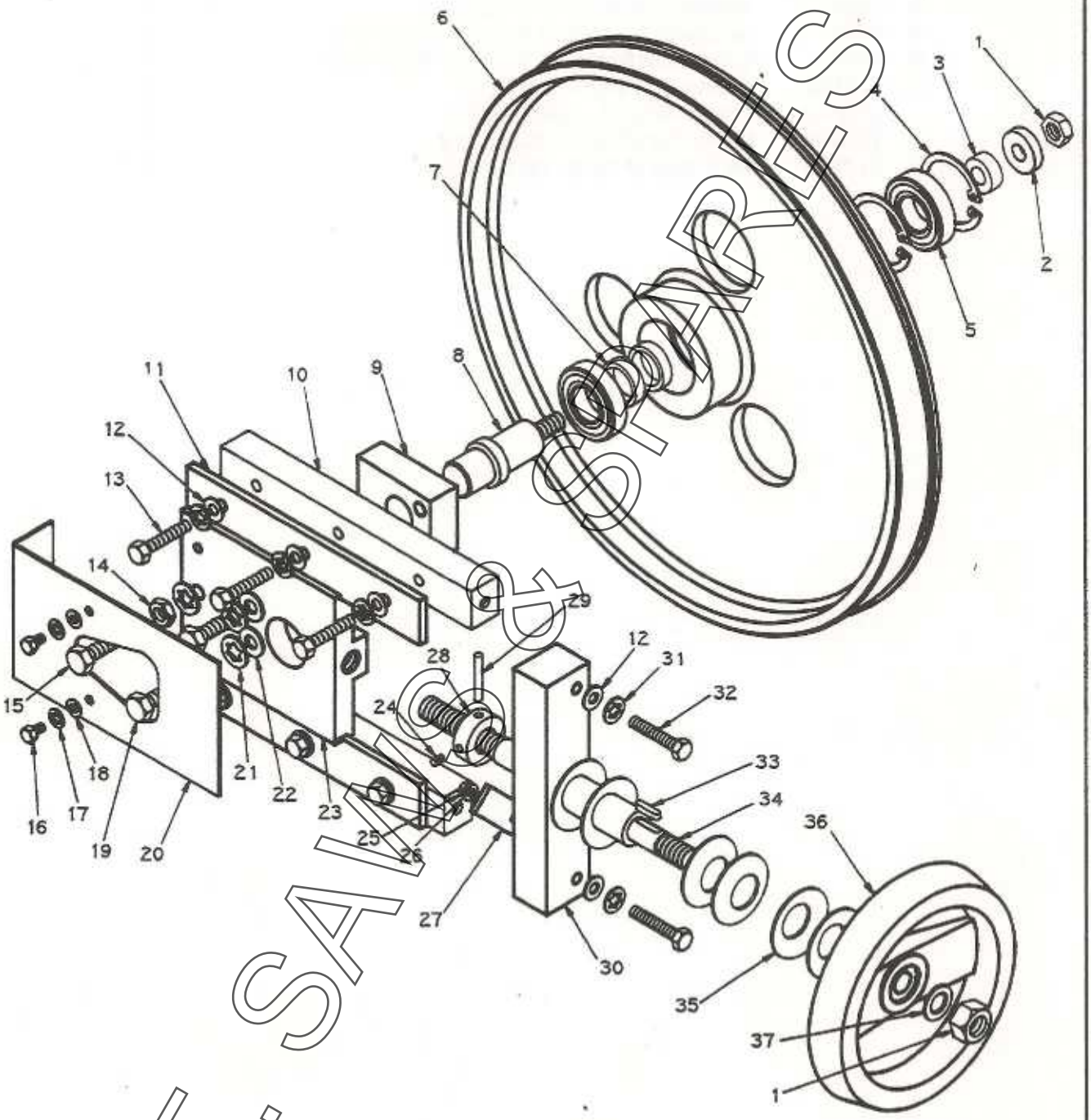
SECTION 746

ITEM	PART No.	DESCRIPTION	No. OFF
1	9776	Guide Arm HB330 Only	2
	9777	Guide Arm HB225/HB250	2
2	BO5356	Set Loc	1
3	9703	Guide Rail	1
4	9702	Guide Arm Lock BAR	2
5	BO5341	Set Loc	4
6	6400	Connector	2
7	9705	Guide Body L.H.	1
8	BO5913	Washer	2
9	BO5773	Binx Nut	2
10	BO2025	Bearing:	4
11	6638	Thumb Screw	2
12	SM2597	L.H. Blade Guard	1
13	BO6305	Rubber Plug:	2
14	BO5087	Cap Screw	2
15	BO5919	Washer	6
16	6062	Spacer Roller - HB225/HB250	2
	9387	Spacer Roller - HB330 Only	2
17	BO5086	Cap Screw	2
18	6393	Blade Guide Insert	4
19	6394	Conical Nut	4
20	6068	Round Carbide Pad	2
21	BO5046	Cap Screw	4
22	9351	Pivot Pin	2
23	9540	Coolant Nozzle	2
24	BO2252	'O' Ring:	4
25	9706	Guide Body R.H.	1
26	BO5070	Cap Screw	2
27	BO5774	Binx Nut	1
28	BO2565	Brush 3 Dia No.	1
29	9744	Blade Brush Pivot	1
30	SM2596	R.H. Blade Guide	1
31	BO5916	Washer	1
32	BO2617	Handle:	1
33	BO5092	Cap Screw	4
34	BO5921	Washer	8
35	BO2619	Handle:	2



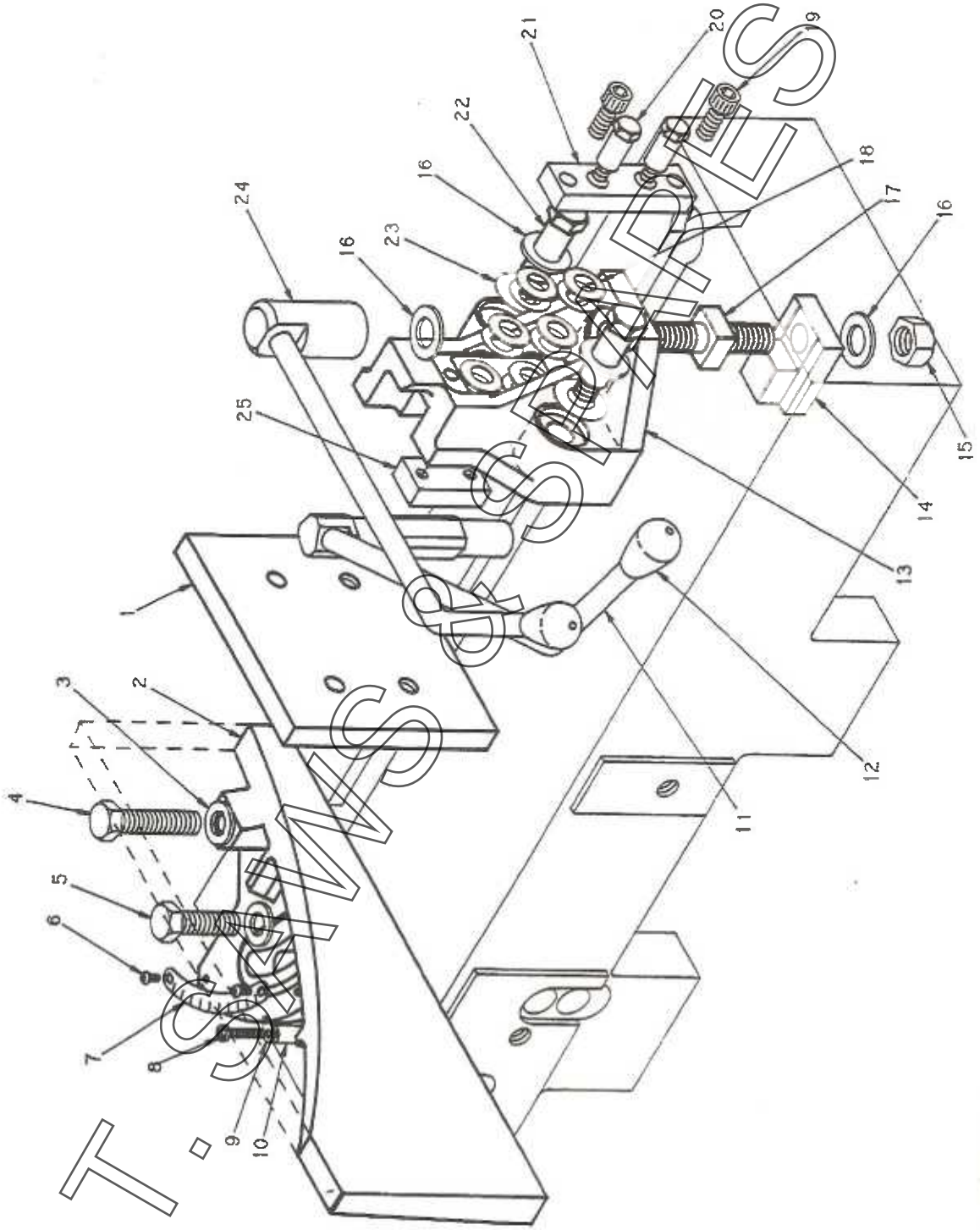
BANDWHEEL - DRIVE END

ITEM	PART No.	DESCRIPTION	No.OFF
1	5961/A	Drive Bandwheel - HB225/HB250	1
	9370	Drive Bandwheel - HB330	1
2	5962	Key	1
3	4333	washer - 5 Speed Machines Only	1
4	9678	Bandwheel Retaining Washer - HB250 Only	1
5	9679	Bandwheel Retaining Washer - HB330 Only	1
6	BO5946	Washer - HB225 Only	1
	BO5945	Washer - HB250/HB330	1
7	BO5579	Hex Screw - HB225 Only	1
	BO5575	Hex Screw - HB250/HB330	1



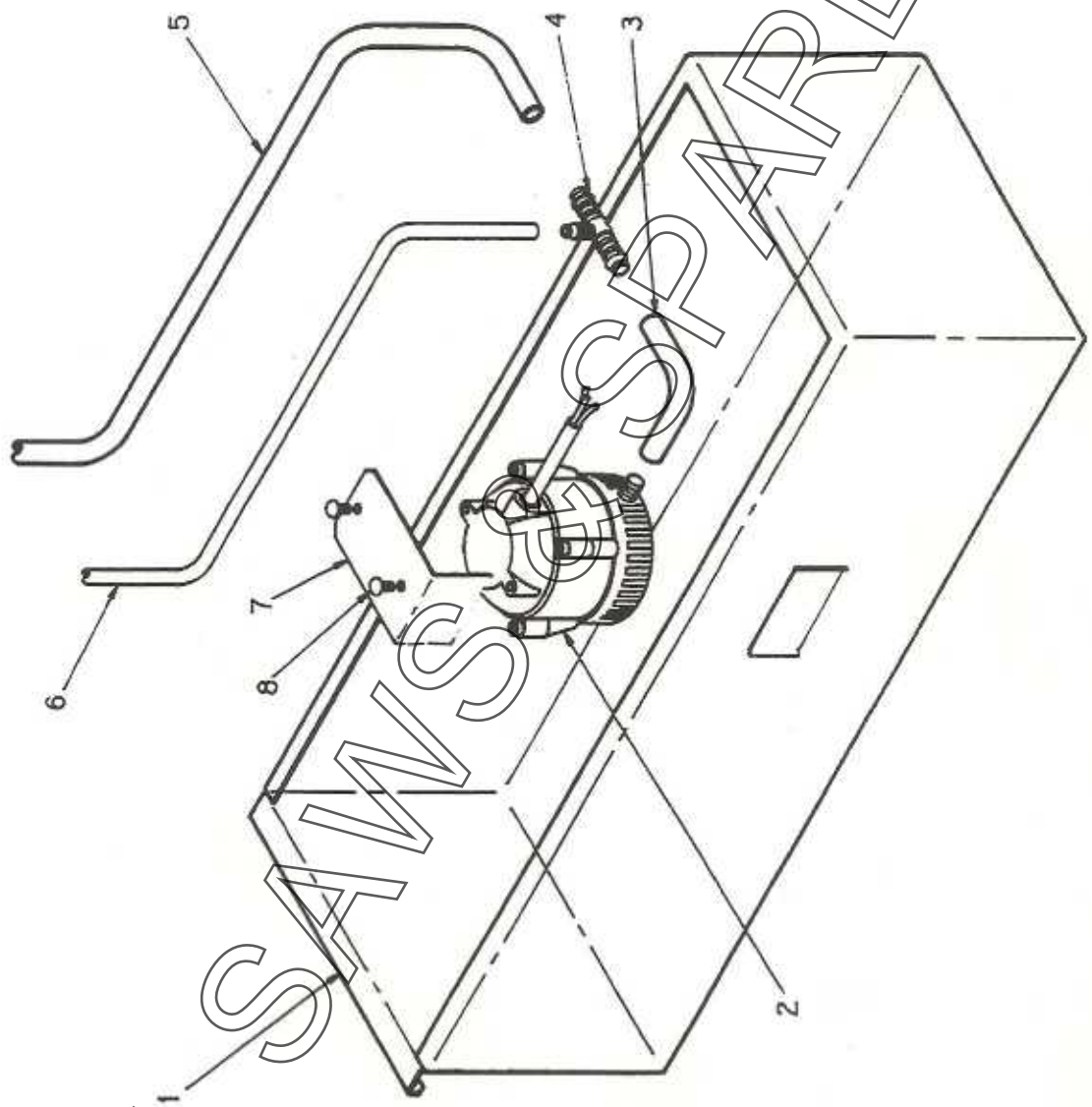
TENSIONING AND TRACKING

ITEM	PART No.	DESCRIPTION	No.OFF
1	BO5774	Binx Nut	2
2	6048	Washer	1
3	5993	Sleeve - HB330 only	1
4	BO6041	Internal Circlip	2
5	BO2006	Bearing	2
6	5961/B	Tension Bandwheel - HB225/HB250	1
	9371	Tension Bandwheel - HB330	1
7	6047	Bearing Spacer - HB225/HB250	1
	6047	Bearing spacer - HB330	2
8	5985	Spigot	1
9	5984	Tracking Block	1
10	9822	Guide Block	2
11	5986	Guide Gib	2
12	BO5017	Washer	8
13	BO5566	Hex Screw	6
14	BO5754	Lock Nut	1
15	BO5574	Hex Screw	1
16	BO5067	Hex Screw	2
17	BO5943	Washer	2
18	BO5915	Washer	2
19	BO5575	Hex Screw	2
20	8388	Guide Tension Plate	1
21	BO5945	Washer I	3
22	BO5919	Washer I	2
23	5979	Tension Guide Plate	1
24	BO5186	Set Screw	1
25	BO5061	Cap Screw	1
26	BO5913	Washer	1
27	6098	Tension Gauge	1
28	5990	Tension Collar	1
29	BO5358	Sel Loc	1
30	5988	Spindle Plate	1
31	BO5944	Washer	8
32	BO5567	Hex Screw	2
33	1148	Key	1
34	5989/A	Tension Spindle	1
35	BO2243	Diespring	6
36	9768	2 Spoke Handwheel	1
37	BO5922	Washer	1



VICE ASSEMBLY

ITEM	PART No.	DESCRIPTION	No.OFF
1	9817	Vice Jaw - Quick Release Vice	1
2	9713	Vice Jaw - Fixed	1
3	BO5922	Washer	2
4	BO5587	Hex Screw	1
5	BO5585	Hex Screw	1
6	BO5415	Phillips Screw	2
7	5916	Indicator Segment	1
8	BO5399	Phillips Screw	1
9	2812	Pointer	1
10	5959/A	Pillar	1
11	SM2680	Vice Actuator Assy.	1
12	BO2618	Handle:	2
13	9818	Vice Body	1
14	9814	Tenon Block	1
15	BO7039	Bin Nut	1
16	BO5923	Washer	4
17	9813	Clamp Stud	1
18	BO2245	Discspring:.	12
19	BO5086	Cap Screw	2
20	9853	Guide Bar	2
21	9816	Fixing Plate	1
22	9812	Guide Pin, Vice Jaw	2
23	BO7040	Wave Spring Washer	2
24	SM2681	Vice Clamp Assy.	1
25	9619	Reaction Block	1

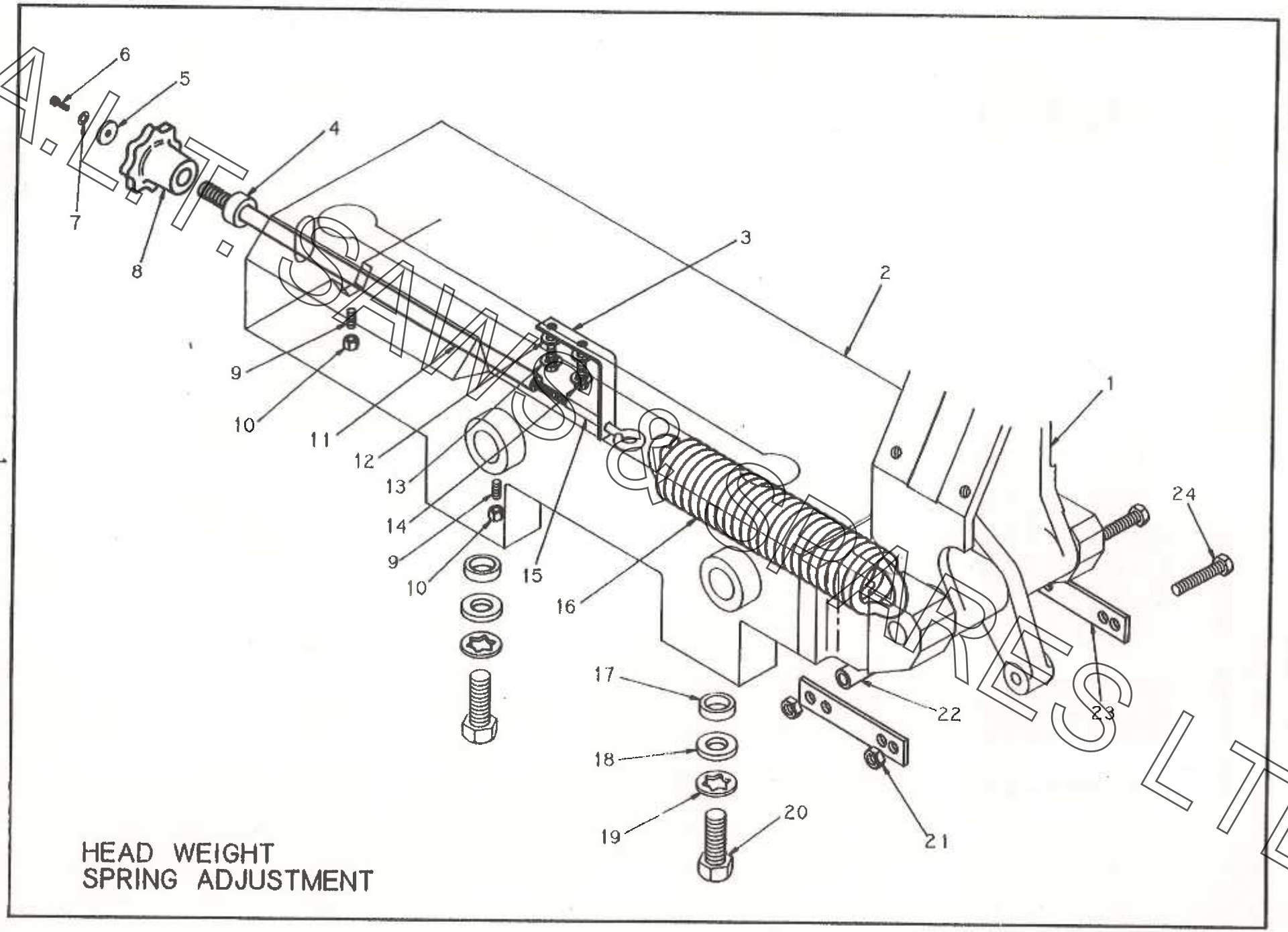


COOLANT TANK

COOLANT TANK

SECTION 754

ITEM	PART No.	DESCRIPTION	No.OFF
1	SM2327	Coolant Tank	1
2	BO2464	Pump:Y1-Y:115V 60Hz	1
3	BO6379	Clear Tube CL16 12mm	0.08
4	BO2490	'T' Adaptor TRS 12-8-12	1
5	BO6379	Clear Tube CL16 12mm	2.14
6	BO6378	Clear Tube CL10 8mm	1.83
7	6505	Pump Bracket	1
8	BO5858	Self Tap 8x1/4" Phillips	2



HEAD WEIGHT
SPRING ADJUSTMENT

HEAD WEIGHT SPRING ADJUSTMENT

SECTION 758

ITEM	PART No.	DESCRIPTION	No.OFF
1	9392	Bow Mount	1
2	SM2415	Machine Bed Assembly HB225/250	1
	SM2417	Machine Bed Assembly HB330	1
3	9547	Spring Support Bracket	1
4	5958	Distance piece	1
5	6403	Washer	1
6	BO5061	Cap Screw	1
7	BO5942	Washer	1
8	6402	Handknob	1
9	BO5204	Set Screw	2
10	BO5715	Full Nut	2
11	5957/A	Spring Rod	1
12	BO5917	Washer	2
13	BO5944	Washer	2
14	BO5073	Cap Screw	2
15	9463	Hook Bolt	1
16	5955	Extension Spring	1
17	BO2126	Nylite Seal:	4
18	BO5921	Washer	4
19	BO5946	Washer	4
20	BO5578	Hex Screw	4
21	BO5755	Locknut	2
22	6070	Distance piece	1
23	6069	Plate	2
24	BO5582	Hex Screw	2