# METAL CUTTING BAND SAW MODEL BS-126G



**Assembly & Operating Instruction** 

#### SAFETY

- 1. Know your bandsaw. Read the operator's Manual carefully. Learn the operations, applications and limitation as well as the specific potential hazards peculiar to this band saw.
- 2. This unit is equipped with a three-prong (grounded) plug for your protection against shock hazards and should be plugged directly into a property grounded three-prong receptacle. Where a two-prong wall receptacle is encountered. It must be replaced with a properly grounded three prong receptacle in accordance with the
- 3. Use only 3-wire extension cords, which have 3-prong grounding type plugs.
- 4. Replace or repair damage or worn cord immediately.
- 5. Keep guards in place and in working order.
- 6. Be especially careful when using bank saw in vertical position to keep fingers and hands out of path of blade.
- 7. Wear ear protection if exposed to long periods of very noisy shop operations.
- 8. Use safety goggles, hard hat and safety shoes. Also use face or dust mask if cutting operation is dusty.
- 9. Wear proper apparel. No loose clothing or jewelry to get caught in moving parts. Do not wear a tie or gloves.
- 10. Don't overreach. Keep your proper footing and balance at all times.
- 11. Secure work. Always use the vise to hold work. Clamp securely. Never hand-hold the work with saw in horizontal position.
- 12. Keep work area clean. Cluttered areas and benches invite accidents.
- 13. Avoid dangerous environment. Don not use the band saw in damp or wet location. Keep work area well illuminated.
- 14. Don't force tool. It will do the job better and safer at in the rate for which it was designed.
- 15. Disconnect power cord before adjusting and servicing and before changing blade.
- 16. Safety is combination of operator common sense and alertness at all times when the saw is being used.
- 17. Never stand on tool. Serious injury could occur if the tool is tipped or if the cutting tool is accidentally contacted.
- 18. Check damaged parts. Before further use of the tools, a guard or other parts that it will operate to assure that it will operate properly
- 19. and perform its intend function-check for alignment of moving parts; binding of moving parts, breakage of parts, mounting and any other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced.
- 20. When moving the saw, ALWAYS have the head lowered to the horizontal position.

#### 1. INTRODUCTION

This operation instruction manual conforms to the requirements of the 98/37/EEC Machine Directives and subsequent amendments.

In the light of this, special attention has been given to safety aspects and accident prevention in the work-place for each stage in the machine's "life". Information which could be of particular assistance to the operator has been highlighted.

The "Operating instructions" are an integral part of the machine and should be consulted before, during and after the start up of the machine and whenever else required. The content of these instructions should always be carefully observed.

The observance of the above is the only way to achieve the two fundamental aims of this manual:

- Optimization of machine performance
- Prevent damage to the machine and injury to the operator

The index of the chapters and the index of the drawings, diagrams and tables are contained in chapter 3 and can be used to help the location of specific information.

CAUTION: BEFORE INSTALLING THE MACHINE, READ THE OPERATING INSTRUCTIONS CAREFULLY

#### 2. INFORMATION ABOUT MAINTENANCE ASSISTANCE

#### 2.1 GUARANTEE

- The products are guaranteed against material and manufacturing defects for a period of 12 months from the date of delivery or, if the machine is installed by our employees, from the date of machine start up.
- The buyer is only entitled to the replacement of parts which are acknowledged as faulty: carriage and packing are at the buyer's. In the event of the above, the following information should be supplied:
- 1. Date and number of purchasing document
- 2. Machine model
- 3. Serial number
- 4. Code of any relevant drawings
- Requests for compensation for the inactivity of the machine will not be accepted.
- The guarantee does not cover uses which are not in line with these operating

instructions which are an integral part of the machine. Nor is maintenance covered if the instructions supplied are not observed.

- The guarantee will not cover machines which have undergone unauthorized modifications.
- Modification or tampering with the safety devices is strictly forbidden.

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#### 4. DESCRIPTION OF THE MACHINE

### 4.1 SAFETY STANDARDS COMPLIED WITH DURING THE DESIGN AND CONSTRUSTION OF THE MACHINE

The machine produced by us is in compliance with:

 98/37/EEC Machinery Directive (ex 89/392/EEC, as amended by the 91/368/EEC, 93/94/ECC and 93/68/EEC Directives).

The following Standards apply:

 EN 292-1 1991 Safety of machinery- Basic concepts and general principles for design.

Basic terminology and methods.

- EN 292-2 1991 Safety of machinery. Basic concepts and general principles for design.

Specifications and technical principles.

- EN418 1994 Safety of machinery. Emergency stop devices, functional aspects-design principles.
- EN 983 1996 Safety requirements related to systems and components for hydraulic and pneumatic transmissions.
- EN 1037 1995 Safety of machinery. Isolation and energy dissipation. Prevention of unexpected start-up.

- EN 1088 1995 Safety of machinery- Interlocking devices with and without guard- locking. General principles and provisions for design.
- EN 60204-1 1998 Safety of machinery. Electrical equipment of machines. Part 1: General requirements Sa.
- EN 60204-2 1990 Electrical equipment of industrial machines. Part 2: Item designation and examples of Drawings, diagrams, tables and instructions.
- 89/336/EEC Directive on electromagnetic compatibility, as amended by the 92/31/EEC, 96/68/EEC, 93/97/EEC and 93/68/EEC

The following Standards apply:

-EN 50081-1 General Standard for emission levels

-EN 50082-2 General Standard for immunity

• 73/23/EEC Low Voltage Directive, as amended by the 93/68/EEC Directive

#### 4.2 DESCRIPTION OF THE MACHINE AND ITS COMPONENTS

The band sawing machine produced by us has a sturdy frame made from welded and painted sheet-steel. The upper surface is designed to allow the complete draining away of the cutting fluid. The band holding bow is made of cast-iron and has generous dimensions, providing the cutting unit with the necessary strength and precision. The vice unit is made of cast-iron and clamps the material to be cut securely. The bar-stop device allows the length required to be preset and a constant level of performance for repeated cuts. The blade-holding bow is firmly attached to a reduction unit built onto the motor and to the base by means of a joint which allows 60° rotation to the right. This joint also allows the cutting movement to advance manually or by falling.

The coolant pump is fitted to the machine base. The main switch is located on the front panel. The choice of one of the two motor rotation speeds and therefore cutting speed is carried out by the main switch. The front panel is also fitted with an emergency stop button and a START button. The control lever, fitted with an ergonomic hand-grip and activation button with safety release action, reduces fatigue during operation to a minimum. The blade is protected by a guard with interlock which covers the upper area and the hand wheels and by two adjustable lower guards which protect the operator from ejected shavings and coolant. The machine is supplied with a set of service spanners.

#### 4.3 Intended and unsuitable uses of the machine

The band sawing machine has been designed and built to cut bars, structural steel and ferrous metal pipes in accordance with the instructions contained in this manual. Therefore, the cutting of other materials is not permitted: if the above recommendations are not observed, the machine could be damaged and the health and safety of the operator put at risk. Cutting is not permitted, if the bar has not been first locked in the vice.

#### 5. MAIN TECHNICAL DATA

Under no circumstances should the following data be altered, this is in order to protect the correct functioning of the machine and to avoid creating safety risks for the operator.

MOTOR: Three-phase or single phase

Motor power: 0.75 kw / 1.1 kw Blade size: 2825 x 27 x 0.9 mm

Cutting angle: 60° right

Drive: gear

Packing size: 163x90x153 cm

N.W / G.W: 380 / 420 kg

#### 6. HANDLING AND TRANSPORTATION

For safe handling and transportation use a lift truck for movement indoors also indicated on the drawing? Encl.?. Keep the machine in its normal position and avoid turning it upside down. If the machine is fastened to the pedestal, stability will be greatly reduced and therefore all the necessary measures should be taken to stop the machine from tipping over.

All handling and transportation operations should be carried out by trained staff.

#### 7. MACHINE INSTALLATION

#### 7.1 MACHINE CHECK

The machine should be checked to make sure that it has not been damaged during

transportation and handling. If the machine appears to have been damaged, contact us immediately. Fit all the supplied accessories onto the machine such as the bar stop and the roller arm.

#### 7.2 FASTENING OF THE MACHINE

The machine will be able to operate in keeping with the technical parameters supplied by us, if it is positioned correctly and fastened securely to the bench or the factory floor so that vibrations are minimal during operation. Consult drawing machine Installation plan Encl.

#### 7.3 BAND ASSEMBLY

Remove the bow guard by unscrewing the screws and the hand wheels. Fit the band by inserting it first between the bearings of the blade guide heads and then on the two pulleys, tighten the blade slightly by means of the hand wheel and replace the bow guard. Check that the band is fitted with the correct direction of teeth, as shown in drawing enclosed document. Make sure that the band type (dimensions 2825×25.4×0.9 mm) and its teeth pith are suited to the material to be cut.

#### 7.4 ELECTRICAL CONNECTION TO THE MAINS

Install a differential thermo magnetic switch with characteristics suited to the mains.

Make sure that the power supply voltage corresponds to the voltage on the motor plate. Connect the cable to the power supply line observing the color codes of the individual wires, pay particular attention to the earth wire. Connect the machine, make sure that the rotation of the circular blade is in the direction shown by the arrow on the guard.

#### 7.5 CUTTING COOLANT

For the cooling of the circular blade, fill the tank with emulsible oil obtained from a mixture of water and AGIP ULEX 260 EP oil with a percentage of ? -? %

#### 8. MACHINE START UP AND OPERATION

#### **8.1 DEVICES AND THEIR LOCATION**

(The location of the devices described is shown on the installation plan Encl.)

Code CHANGE OVER SWITCH

Code START-STOP MICROSWITCH: situated inside the handle located at the end of the control lever and has safety release action.

Code ELECTRIC PUMP

Code CUTTING ANGLE DEVICE: to check that cutting inclination is as required

Code LOCKING VICE

Code BAR STOP

Code CONTROL LEVER WITH HANDLE

#### **8.2 TOOLS SUPPLIED**

1 Allen wrench size 3

- 1 Allen wrench size 5
- 1 Allen wrench size 6
- 1 Allen wrench size 8
- 1 Allen wrench size 10

#### **8.3 OPERATION**

#### CHECKES TO CARRY OUT BEFORE EACH CUT

- A Tension the band by rotating the hand wheel to the end of stroke (mechanic stop) Remember at the end of the operation to loosen the hand wheel to avoid the slackening of the band.
- B Check that the hand indicates the required cutting angle (vice scale).
- C Make sure that the bow and the vice are locked by means of the lever.
- D With the motor off, lower the bow and check that at the end of stroke, the band does not touch the counter-vice. If the band does touch, adjust the screw located on the bow.
- E Make sure that the piece to be cut is properly secured in the vice.
- F Make sure that the cooling liquid is circulating in the machine.

#### IT IS STRICTLY FORBIDDEN TO USE THE MACHINE WITHOUT CUTTING FLUID

- G When starting the motor, make sure that the band rotates in the direction of the arrow shown in DRAW.
- H To obtain maximum cutting accuracy, the unit must be located the nearest possible to the work piece. Clamp the work piece with the vice. Release the blade guide arm with clamping lever. And move it near the vice jaw so that it doesn't touch it during the

cutting operation, then secure it again. When carrying out this operation, make sure that the blade guide guard does not come out of the bow guard leaving a part of the blade exposed.

#### **CUTTING OPERATION**

- A Before cutting, check that the inclination is the one required. In order to correct or change the inclination, place the bench lever in position and after correction, move it back to position.
- Clamp the material to be cut with the hand wheel 125 after having positioned the clamp near the piece to be cut by lowering the lever 136 from position A to position B allowing a fast displacement (DRAW.4 ENCL.3) with selector 151 in M position. Turn the main switch 161 to the position required, take hold of the handle 95 located at the end of head lever and press the button. The blade will now start turning, position the blade carefully on the piece to be cut. Then increase the pressure in order to accelerate the cutting operation without using excessive force.
- C With selector 151 in CSO position . Turn the main switch 161 to the position required. After having started the unit by pressing the START push button 150, the blade starts to rotate. The down stroke of the bow can be adjusted by means of the appropriate regulator. Position the blade carefully on the piece to be cut. Then increase the pressure with the regulator in order to accelerate the cutting operation without using excessive force.
- D To make a series of cuts, position the bar stop in correspondence of the size required. Fix it into position by using the hand wheel 121 (DRAW.6 ENCL.4).
- E To replace the band, carry out the same operations used to assemble the band (chapter 7c).
- F For the choice of blade see table ENCL.1.

## We strongly discourage the use of blades with ruined or insufficiently sharp cutting edges

#### **8.4 SPECIAL SAFETY CHECKS**

A. Before using the machine, check carefully that the safety devices are in good working order,, that the mobile parts are not blocked, that no parts are damaged and that all

- the components are installed correctly and are functioning properly.
- B. Make sure, before operating the machine, that the screws of the guards and other protective devices are adequately secured, especially the screws of bow guard.
- C. Check that the safety micro switches and the emergency button are functioning correctly. Test them during a ladles machine cycle.
- D. Make sure that the mobile guard does not leave uncovered an angle of more than 5° in order to prevent fingers from entering.
- E. Pay attention to environmental conditions. Do not expose the machine to rain, to mot use it in damp environments, and position the machine on a clean dry floor that has no oil or grease stains.
- F. Before using the machine, the operator should make sure that all tools and service spanners used for maintenance or adjustment have been removed.

#### **8.5 GENERAL SAFETY RULES**

- A. Wear appropriate clothing. The operator's clothing should not be loose or dangling nor should it have parts which could easily get caught. Sleeves should contain elastic. Belts, rings or chains should not be worn. Long hair should be kept in a net.
- B. Avoid unstable operating positions. Find safe and evenly balanced position to operate the machine.
- C. Keep the work area tidy, untidiness increases the risk of accidents.
- D. Do not use the power supply cable to disconnect the plug from the socket. Protect the cable from high temperatures, oil or sharp edges. For outdoor use, only use extension cables that are in line with current regulations.

#### **8.6 MEASURES TO PREVENT RESIDUAL RISKS**

- A. The removal of guards and tampering with the safety devices is strictly forbidden.
- B. Gloves should always be worn.
- C. Standard work clothing should be used and kept closed and should not have flapping parts.
- D. The machine should not be cleaned with liquids under pressure.
- E. In the event of fire, extinguishers should not be used unless they are the powder type. The electric power supply to the machine should always be disconnected in these circumstances.
- F. Do not insert foreign bodies into the motor cover and to not supply the machine with

- voltage by tampering with the safety micro switches or main switch.
- G. Take the necessary precautions to avoid the machine being started by other people during loading, adjustment, piece changing or cleaning.

#### 9. MAINTENANCE AND REPAIRS

#### 9.1GENERAL SAFETY MEASURES

- A. Lockable main switch. Use the padlock in the event of machine failure or replacement of the band. The padlock key should be entrusted to a responsible person.
- B. Before carrying out any work on electrical equipment, remove the power supply plug from the control pane (disconnect voltage).
- C. Only use cables to supply power, which have a cross-section suited to the power of the machine.
- D. Opening key. The keys of the machine should be dept by authorized personnel. Do not leave the keys for doors that provide access to the hydraulic or electrical parts or keys to lockable switches in easy of reach of unauthorized personnel.
- E. Repairs should only be carried out by authorized personnel. Only spare parts made by the original manufacturer should be used, otherwise these could cause damage or injury.

#### 9.2 ROUTINE CHECKS AND MAINTENANCE

FREQUENCY	OPERATION
(working hours)	
100 hours	Adjustment blade guide bearings
1000	Lubrication of mobile parts in the piece locking vice (GREASE
	AGIP MU 2)
50	Cleaning of the coolant tank and filter check
If necessary	Check functioning of bench lever

#### 9.3 DESCRIPTION OF ROUTINE MAINTENANCE

#### A. Adjustment of the blade guide bearings

Loosen the screws 69, rotate the cams 72, so that the blade guide bushings vertically position the blade in axis (DRAW.3 ENCL.2). Loosen the lock nuts 31 and tighten the dowels 67 until the blade secured. Loosen the dowels 67 slightly (about 1/10 of a turn)

and secure the nuts again. The front blade guides must be positioned the nearest possible to the piece to be cut. Check every 3 months the existing tolerance between the blade guides, making sure that it does not exceed the blade thickness of one tenth of a millimeter, so as to avoid inexactnesses in the cut squaring. Periodically check with mounted blade that the blade guide bearings rotate freely.

#### B. Lubrication of mobile parts of piece locking vice

Remove jaw 137 (draw. 4/5 ENCL.3), withdraw vice 132 completely by lowering the lever 136. Clean and grease the mobile parts of the counter-vice 115 and vice 132-133. In case of sliding difficulties or play the clamp guides carry out the following operations: loosen nut 141, adjust dowel 140 and secure nut 141. Lubricate the band guide devices regularly.

#### C. Cleaning of the coolant tank

The coolant tank can be cleaned by simply removing the crucible 104 (DRAW.1 ENCL.1). Empty the coolant from the tank and collect the coolant in a container for future disposal. Clean away the shavings and the metallic powder, taking care not to scatter this over the machine especially around the motor and the box containing the electrical equipment. Fill the tank with the amount and liquid stated earlier.

#### D. Checking of bench lever functioning

Check regularly that the rotation release-locking lever is working properly. In the event of the lever not locking correctly, loosen grub screw 156(draw.4 Encl.3), tighten nut 114 and fasten grub screw 156 again. Make sure that with the bench lever in position D, arm 109 which supports the bow, can rotate freely.

#### 10. INFORMATION REGARDING ENVIRONMENTAL NOISE

An environmental noise test carried out on the band saw machine, identical to the machine to which these operation instructions refer, has given the following results:

#### **ACOUSTIC RADIATION PRESSURE**

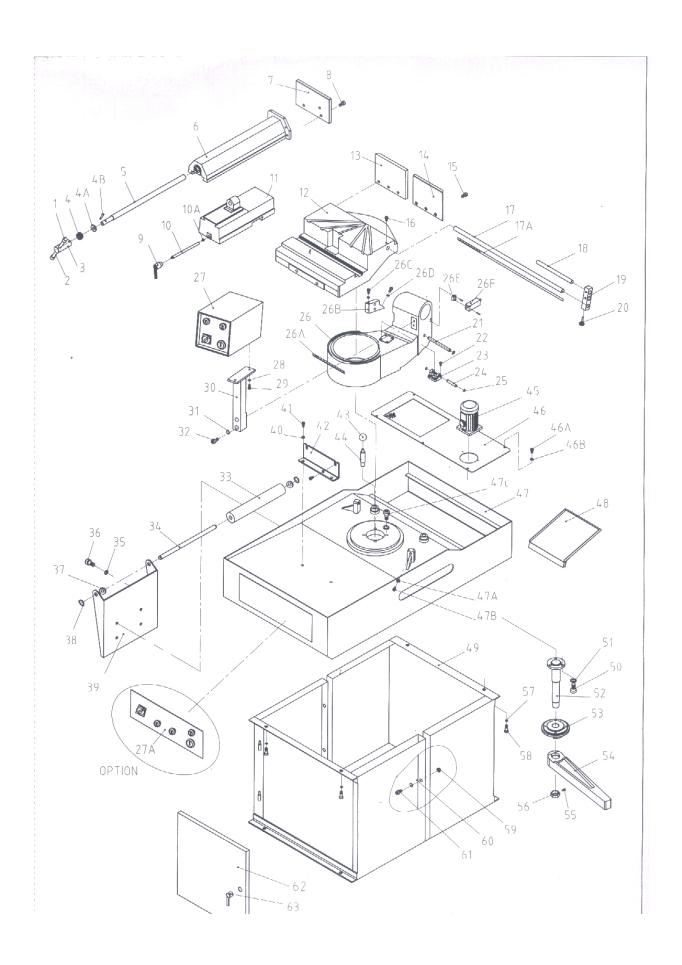
- 1.  $L_{Aeq}$ =83,2 dB (A)
- 2. L<sub>Aea</sub>=90.6 dB (the maximum acceptable value is 140dB).
- 3. The level of background noise has no influence = 48.5-54.2 dB (A).

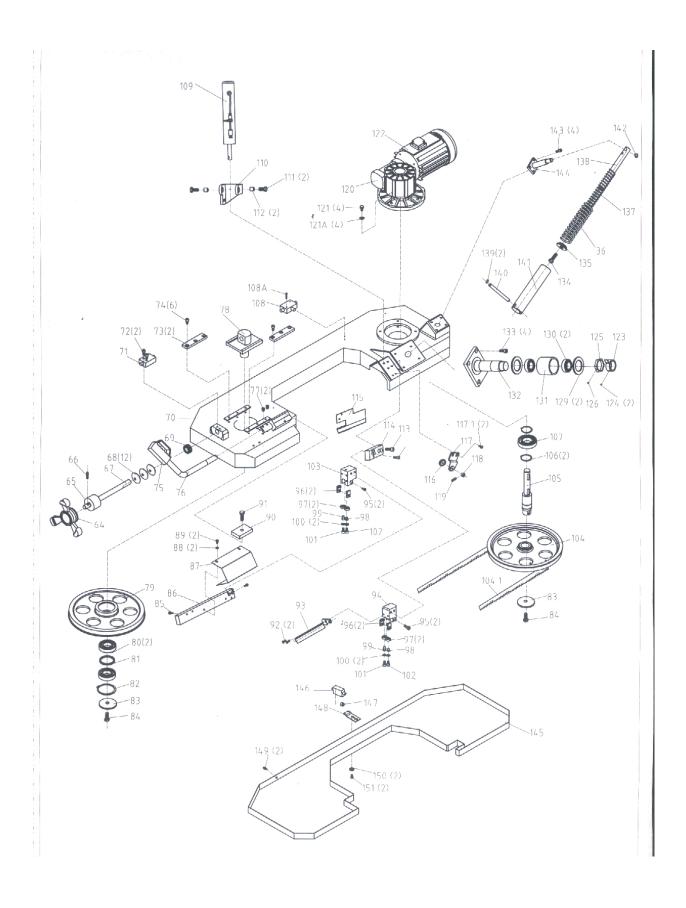
### 11. LIST OF SPARE PARTS

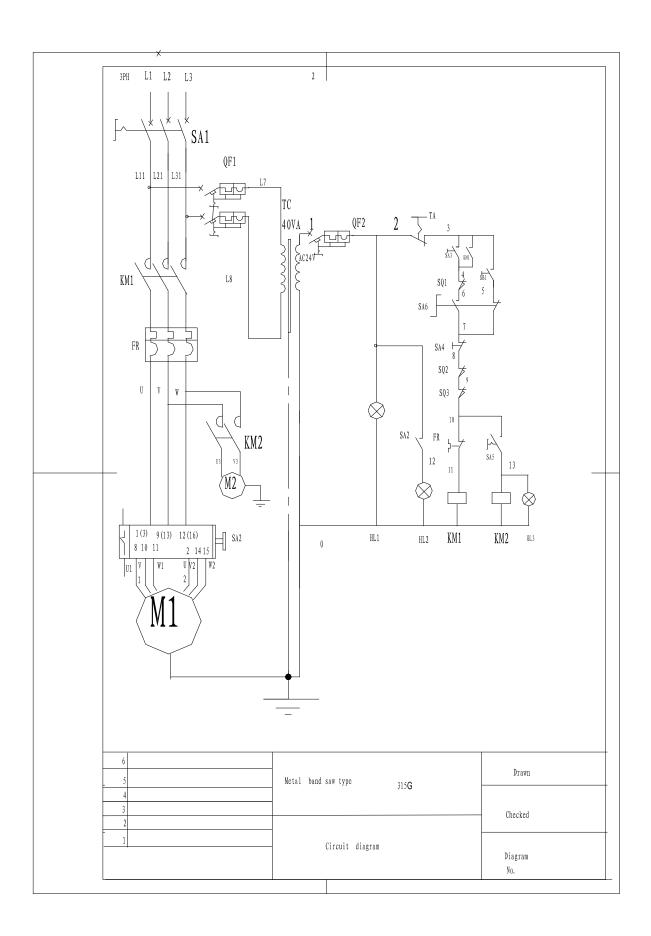
ITEM	DESCRIPTION	QTY	ITEM	DESCRIPTION	QTY
1	Handle glove M8X25	2	25	Block washer 10	2
2	Handle bar	1	26	Turning body BS315G-0014	1
3	Handle axis BS315G-0002	1	26A	Ruler	1
4	Thrust bearing AXK1730	1	26B	Limit block BS315G-0014	1
4A	Washer BS315G-0003	1	26C	Hexagon bolt M8x30	2
4B	Spring pin 6x30	1	26D	Nut M8	2
5	Lead screw BS315G-0007	1	26E	Gasket BS315G-0038	1
6	Upper clamp BS315G-0006	1	26F	Limit switch	1
7	Moving clamp board BS315G-0008	1	27	Operating panel	1
8	Hexagon screw M10X20	3	27A	Operating panel	1
9	Adjusting handle M12X100	1	28	Nut M6X16	2
10	Axis BS315G-0010	1	29	Mat 6	2
10A	Antenna BS315G-0011	1	30	Electrical box bracket BS-315G-0031	1
11	clamp connecting seat BS315G-0009	1	31	Mat 8	2
12	Lower clamp BS315G-0012	1	32	Bolt M8X20	2
13	clamp fixed board 1	1	33	Roller BS315G-0025	1
14	Clamp fixed board 2	1	34	Holder shaft BS315G-0027	1
15	Hexagon screw M10X25	6	35	Mat 12	4
16	Hexagon screw M8x10	1	36	Bolt M12X20	4
17	Fixing bar	1	37	Sheath BS315G-0026	2
17A	Ruler	1	38	Block washer 17	2
18	Baffle shaft	1	39	Bracket BS315G-0028	1
19	Baffle block	1	40	Mat 10	4
20	Pentacle handle M8X16	1	41	Hexagon screw M10X25	4
21	Sleeve fixing shaft BS315G-0019	1	42	Bracket BS315G-0013	1
22	Hexagon screw M6X20	4	43	Handle ball M10X32A	2
23	Hydraulic fixing seat	1	44	Shaft	1
24	Hydraulic fixing shaft	1	45	Cooling pump	1

ITEM	DESCRIPTION	QTY	ITEM	DESCRIPTION	QTY
46	Cover board	1	74	Hexagon screw M8X16	6
	BS315G-0018				
46A	Hexagon screw M10X25	6	75	Handle switch	1
46B	Mat 5	6	76	Pressure handle	1
47	Under pan BS315G-0015	1	77	Hexagon screw M10X12	1
47A	Nut M10	2	78	Moving seat	1
47B	Hexagon bolt M10X45	2	79	Driven wheel BS315G-0033	1
47C	Hexagon screw M10X45	4	80	Bearing 6207-2Z	2
48	Preventing board	1	81	Sheath	1
49	Leg BS315G-0016	1	82	Block washer 72	1
50	Hexagon screw M8X25	3	83	Mat	2
51	Mat 8	3	84	Hexagon bolt M12X25	2
52	Connecting shaft	1	85	Hexagon screw M6X12	1
53	Lock seat	1	86	Adjusting stand	1
54	Lock handle	1	87	Board	1
55	Hexagon screw M8X10	1	88	Flat washer 6	2
56	Nut M30X1.5	1	89	Hexagon screw M6X10	2
57	Mat 10	4	90	Pressure board BS315G-0001	1
58	Hexagon screw M10X25	4	91	Hexagon bolt M12X35	1
59	Nut M8	4	92	Hexagon screw M5X8	2
60	Mat 8	8	93	Guard board	1
61	Hexagon screw M8X16	4	94	Rear adjusting seat	1
62	Door BS315G-0017	1	95	Hexagon head screw M8x25	2
63	Lock MS802	1	96	Clamp	4
64	Trifurcate handle ∮ 70X ∮ 18	1	97	Bearing 6208-2Z	4
65	Sheath	1	98	Hexagon eccentric cover	2
66	Spring pin 8X35	1	99	Hexagon eccentric cover	2
67	Adjusting pole BS315G-0021	1	100	Flat washer 8	4
68	Dishing spring 4X20.5X2	12	101	Hexagon screw M6X30	2
69	Thrusting bearing AXK2035	1	102	Hexagon screw M6X25	2
70	Saw bow BS315G-0020	1	103	Front adjusting seat	1
71	Blade adjusting switch	1	104	Driving wheel BS315G-0032	1
72	Hexagon screw M4X30	2	104.1	Saw blade 2825X27X0.9X5/8	1
73	Pressure board	2	105	Output shaft	1

ITEM	DESCRIPTION	QTY	ITEM	DESCRIPTION	QTY
106	Block washer 40	2	129	Bearing cover	2
				BS315G-0035	
107	Bearing 6208-2Z	1	130	Bearing 32009X2	2
108	Cooling water separation block	1	131	Sheath BS315G-0034	1
108A	Hexagon screw M4X25	4	132	Rotary shaft BS315G-0036	1
109	Cylinder	1	133	Hexagon screw M10X25	4
110	Cylinder bracket BS315G-0023	1	134	Hexagon screw M12X45	1
111	Hexagon M12X25	2	135	Pressure pad	1
112	sheath	2	136	Pressure spring II	1
113	Hexagon screw M10X25	2	137	Pressure spring II	1
114	Connecting board BS315G-0030	1	138	Shaft	1
115	Shield board BS315G-0029	1	139	Block washer 12	2
116	Wire brush ∮ 50		140	Shaft	1
117	Wire brush bracket BS315G-0024	1	141	Sleeve	1
117.1	Hexagon screw M10X25	2	142	Block washer 15	1
118	Shaft sheath	1	143	Hexagon screw M8X20	4
119	Hexagon screw M6X6	1	144	axis seat	1
120	Slowdown box	1	145	Bow shield	1
				BS315G-0022	
121	Hexagon bolt M10X30	4	146	Bow shield switch	1
122	Motor	1	147	Route switch pad	1
123	Route switch stand	1	148	Key switch plate	1
124	Hexagon screw M6X6	2	149	Handle screw M6X12	2
125	Nut BS315G-0037	1	150	Flat washer 6	2
126	Hexagon screw M8X10	1	151	Hexagon screw M6X12	2







#### 12. LAYING OFF AND DISMANTLING

#### **12.1 LAYING OFF**

If the machine is to be laid off or left idle for a long period, the following operations must be carried out:

- 1. Disconnect the machine from the electricity mains.
- 2. Empty oil from the gear box and cooling liquid from its tank.
- 3. Clean carefully the machine by getting rid of all traces of grease, especially on the worked parts that must be protected with anti-oxidants.
- 4. Cover the machine with a sheet, preferably not plastic as it can cause rust due to the humidity condensation.
- 5. Store the machine in a closed, dust-free place.

#### 12.2 DISMANTLING

If the machine must be definitively dismantled, its components must be sub-divided for the purpose of a possible recycle of the materials and for the environment safety. The following table is given for your guidance:

steel	Light alloy	Cast iron	Bronze copper	plastic	various
bolts	cylinders	Structural	Motor winding		
		parts			
springs				seals	
flanges	Gear			Flexible	
	boxes			pipes	
				gaskets	
Pins,			bushings		friction
pivots					items

Used oil and materials must be disposed of according to 75/439/EEC and 87/101/EEC Directives and to country specific regulations.