



HARE & FORBES

MACHINERYHOUSE

Established 1930

Distributors of New & Used Workshop Equipment

B067D

24-10-11

METAL CUTTING BAND SAW

MODEL: EB-320DSV

PLANT SAFETY PROGRAM

NEW MACHINERY HAZARD IDENTIFICATION, ASSESSMENT & CONTROL

Metal Cutting Bandsaw

Developed in Co-operation Between A.W.I.S.A and Australia Chamber of Manufactures
This program is based upon the Australian Worksafe Standard for Plant(NOHSC:1010-1994)



Item No.	Hazard Identification	Hazard Assessment	Risk Control Strategies (Recommended for Purchase / Buyer / User)
A	ENTANGLEMENT	HIGH	Eliminate, avoid loose clothing / Long hair etc.
B	CRUSHING	LOW	Secure & support Long / heavy material
C	CUTTING, STABBING, PUNCTURING	MEDIUM	Blade guards should always be in the closed position before starting machine. Blade guide system should be adjusted to suit material width. Wear gloves when changing blades. Isolate main power switch before changing blade, cleaning or adjusting. If blade breaks do not open door until both wheels have stopped. Check blade tracking before starting.
D	SHEARING	MEDIUM	Make sure all guards are secured shut when machine is on. Isolate power to machine prior to changing belts or maintenance.
F	STRIKING	LOW	Support long heavy jobs and stand clear of offcuts. Stand clear of machine when in operation. Remove all loose objects around moving parts. Wear safety glasses
H	ELECTRICAL	MEDIUM	All electrical enclosures should only be opened with a tool that is not to be kept with the machine.
O	OTHER HAZARDS, NOISE.	LOW	Machine should be installed & checked by a Licensed Electrician. Wear hearing protection as required.
Plant Safety Program to be read in conjunction with manufactures instructions			



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Authorised and signed by: 
Safety officer:
Manager: 

Revised Date: Aug-08

WARNING

General Machinery Safety Instructions

Machinery House
requires you to read this entire Manual before using this machine.

- 1. Read the entire Manual before starting machinery.** Machinery may cause serious injury if not correctly used.
- 2. Always use correct hearing protection when operating machinery.** Machinery noise may cause permanent hearing damage.
- 3. Machinery must never be used when tired, or under the influence of drugs or alcohol.** When running machinery you must be alert at all times.
- 4. Wear correct Clothing.** At all times remove all loose clothing, necklaces, rings, jewelry, etc. Long hair must be contained in a hair net. Non-slip protective footwear must be worn.
- 5. Always wear correct respirators around fumes or dust when operating machinery.** Machinery fumes & dust can cause serious respiratory illness. Dust extractors must be used where applicable.
- 6. Always wear correct safety glasses.** When machining you must use the correct eye protection to prevent injuring your eyes.
- 7. Keep work clean and make sure you have good lighting.** Cluttered and dark shadows may cause accidents.
- 8. Personnel must be properly trained or well supervised when operating machinery.** Make sure you have clear and safe understanding of the machine you are operating.
- 9. Keep children and visitors away.** Make sure children and visitors are at a safe distance for you work area.
- 10. Keep your workshop childproof.** Use padlocks, Turn off master power switches and remove start switch keys.
- 11. Never leave machine unattended.** Turn power off and wait till machine has come to a complete stop before leaving the machine unattended.
- 12. Make a safe working environment.** Do not use machine in a damp, wet area, or where flammable or noxious fumes may exist.
- 13. Disconnect main power before service machine.** Make sure power switch is in the off position before re-connecting.
- 14. Use correct amperage extension cords.** Undersized extension cords overheat and lose power. Replace extension cords if they become damaged.
- 15. Keep machine well maintained.** Keep blades sharp and clean for best and safest performance. Follow instructions when lubricating and changing accessories.
- 16. Keep machine well guarded.** Make sure guards on machine are in place and are all working correctly.
- 17. Do not overreach.** Keep proper footing and balance at all times.
- 18. Secure workpiece.** Use clamps or a vice to hold the workpiece where practical. Keeping the workpiece secure will free up your hand to operate the machine and will protect hand from injury.
- 19. Check machine over before operating.** Check machine for damaged parts, loose bolts, Keys and wrenches left on machine and any other conditions that may effect the machines operation. Repair and replace damaged parts.
- 20. Use recommended accessories.** Refer to instruction manual or ask correct service officer when using accessories. The use of improper accessories may cause the risk of injury.
- 21. Do not force machinery.** Work at the speed and capacity at which the machine or accessory was designed.
- 22. Use correct lifting practice.** Always use the correct lifting methods when using machinery. Incorrect lifting methods can cause serious injury.
- 23. Lock mobile bases.** Make sure any mobile bases are locked before using machine.
- 24. Allergic reactions.** Certain metal shavings and cutting fluids may cause an allergic reaction in people and animals, especially when cutting as the fumes can be inhaled. Make sure you know what type of metal and cutting fluid you will be exposed to and how to avoid contamination.
- 25. Call for help.** If at any time you experience difficulties, stop the machine and call you nearest branch service department for help.



WARNING

Metal Cutting Bandsaw Safety Instructions

Machinery House
requires you to read this entire Manual before using this machine.

- 1. Maintenance.** Make sure the bandsaw is turned off and disconnect from the main power supply and make sure all moving parts have come to a complete stop before any inspection, adjustment or maintenance is carried out.
- 2. Bandsaw Condition.** Bandsaw must be maintained for a proper working condition. Never operate a bandsaw that has damaged or worn parts. Scheduled routine maintenance should be performed on a scheduled basis.
- 3. Blade Condition.** Never operate a bandsaw with a dull, cracked or badly worn blade. Before using a bandsaw inspect blades for missing teeth and cracks.
- 4. Replacing Blade.** Make sure teeth are facing the correct direction. Wear gloves to protect hands and wear safety glasses to protect your eyes.
- 5. Hand Hazard.** Keep hands and fingers clear from the line of cut of the blade and offcuts workpieces. Hands can be crushed in vice or from falling machine components and cut by the blade.
- 6. Leaving a bandsaw Unattended.** Always turn the bandsaw off and make sure all moving parts have come to a complete stop before leaving the bandsaw. Do not leave bandsaw running unattended for any reason.
- 7. Avoiding Entanglement.** Blade guard must be used at all times. Remove loose clothing, belts, or jewelry items. Never wear gloves while machine is in operation. Tie up long hair and use the correct hair nets to avoid any entanglement with the bandsaw moving parts.
- 8. Understand the machines controls.** Make sure you understand the use and operation of all controls.
- 9. Power outage.** In the event of a power failure during use of the bandsaw, turn off all switches to avoid possible sudden start up once power is restored.
- 10. Work area hazards.** Keep the area around the bandsaw clean from oil, tools, chips. Pay attention to other persons in the area and know what is going on around the area to ensure unintended accidents.
- 11. Workpiece Handling.** Workpieces must be supported with table, vice, roller conveyor/stands, or other support fixtures. Unsupported workpieces may cause the machine to tip over and fall. Flag long pieces of material to avoid tripping hazards. Never hold a workpiece with your hands during the cut process.
- 12. Hearing protection and hazards.** Always wear hearing protection as noise generated from bandsaw blade and workpiece vibration, material handling, and power transmission can cause permanent hearing loss over time.
- 13. Hot surfaces.** Workpieces, machine surfaces and chips become hot due to friction and can burn you.
- 14. Starting position.** Never turn the bandsaw on when the blade is resting on the workpiece.
- 15. Guards.** Do not operate bandsaw without the blade guard in place or with the doors open.
- 16. Call for help.** If at any time you experience difficulties, stop the machine and call your nearest branch service department for help.

METAL CUTTING BAND SAW MACHINE

EB-320DSV

Instruction Manual

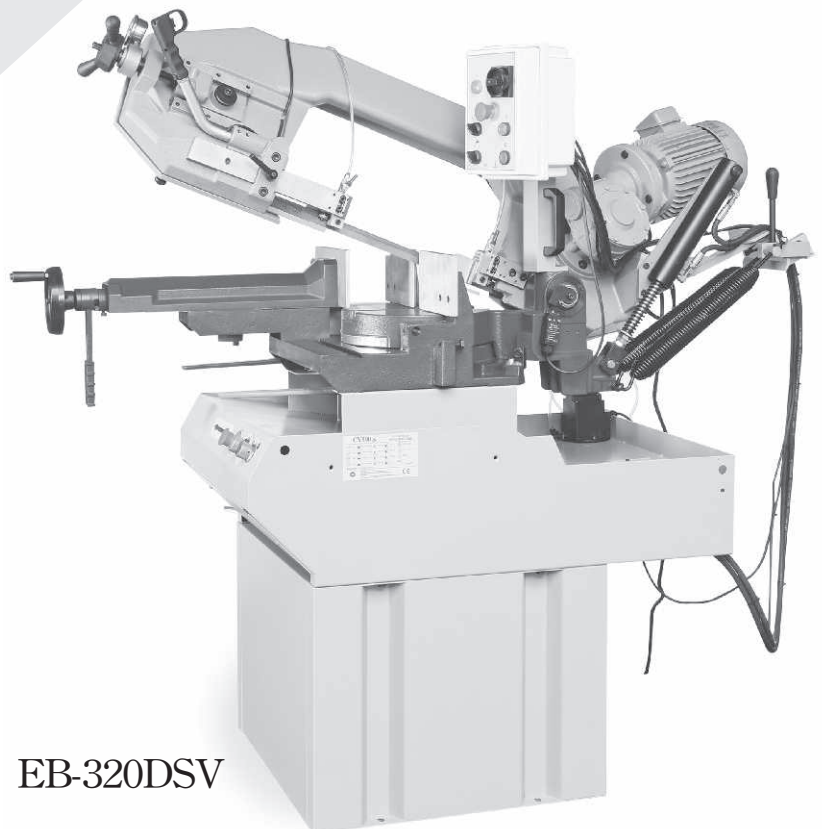
Standard Equipment

Bimetal saw blade

Cooling pump

Magnetic switch & CE

Stand



EB-320DSV

1 REFERENCE TO ACCIDENT - PREVENTION REGULATIONS

This machine has been built to comply with the national and community accident-prevention regulations in force. Improper use and/or tampering with the safety devices will relieve the manufacturer of all responsibility.

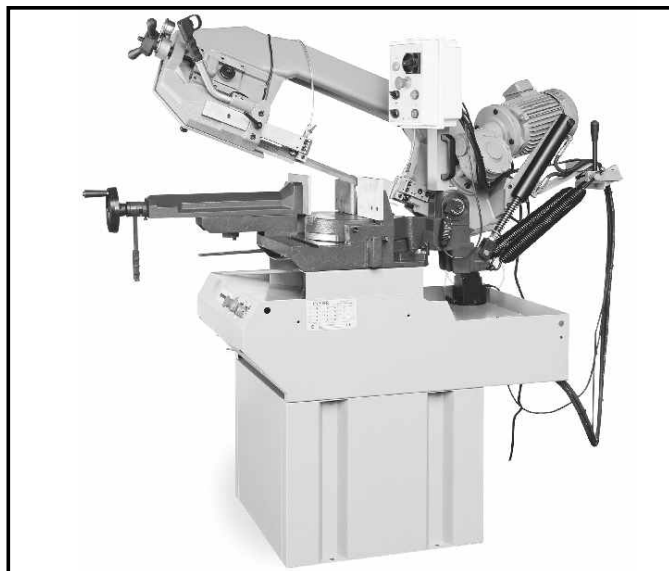
1.1 - Advice for the operator



- Check that the voltage indicated on the plate, normally fixed to the machine motor, is the same as the line voltage.
- Check the efficiency of your electric supply and earthing system; connect the power cable of the machine to the socket and the earth lead (yellow-green in colour) to the earthing system.
- When the saw frame is in suspend mode (up) the toothed blade must not move.
- Only the blade section used for cutting must be kept unprotected. Remove guarding by operating on the adjustable head.
- It is forbidden to work on the machine without its shields (these are all blue or grey in colour).
- Always disconnect the machine from the power socket before blade change or carrying out any maintenance job, even in the case of abnormal machine operation.
- It is forbidden to disconnect the "man present" device, known more correctly in the EEC as the "safety switch with hold-down action".
- Always wear suitable eye protection.
- Never put your hands or arms into the cutting area while the machine is operating.
- Do not shift the machine while it is cutting.
- Do not wear loose clothing with sleeves that are too long, gloves that are too big, bracelets, chains or any other object that could get caught in the machine during operation; tie back long hair.
- Keep the area free of equipment, tools or any other object.
- Perform only one operation at a time and never have several objects in your hands at the same time. Keep your hands as clean as possible.
- All internal and/or internal operations, maintenance or repairs, must be performed in a well-lit area or where there is sufficient light from extra sources so as to avoid the risk of even slight accidents.

1.2 - Location of shields against accidental contact with the tool

- Blue, grey metal guards, fastened with screws onto the stationary blade-guide and relevant holding arm.
- Blue or grey metal guard fastened with screws onto the mobile blade-guide, ensures covering of blade section not used in cutting operation.
- Grey metal guards fastened with knobs onto the saw frame, to protect from flywheels.



1-3 - Electrical equipment according to Euro-pean Standard "CENELEC EN 60 204-1" which assimilates, with some integrating modifications, the publication "IEC 204-1"

- The electrical equipment ensures protection against electric shock as a result of direct or indirect contact. The active parts of this equipment are housed in a box to which access is limited by screws that can only be removed with a special tool; the parts are fed with alternating current at low voltage (24 V). The equipment is protected against splashes of water and dust.
- Protection of the system against short circuits is ensured by means of rapid fuses and earthing; in the event of motor overload, protection is provided by a thermal probe.
- In the event of a power cut, the specific start-up button must be reset.
- The machine has been tested in conformity with point 20 of EN 60204.

1.4 - Emergencies according to European Standard "CENELEC EN 60 204-1"

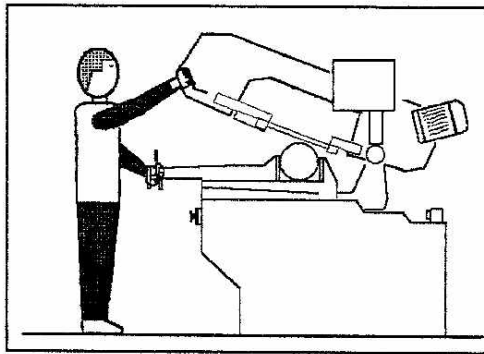
- In the event of incorrect operation or of danger conditions, the machine may be stopped immediately by pressing the red mushroom button.
- The casual or voluntary removal of the protection shield of the flywheels causes the stepping-in of a microswitch that automatically stops all machine functions.

NOTE: Resetting of machine operation after each emergency stop is achieved by reactivating the specific restart button.

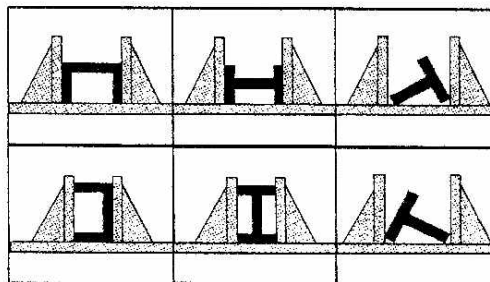
2 RECOMMENDATIONS AND ADVICE FOR USE

2.1 - Recommendations and advice for using the machine

- The machine has been designed to cut metal building materials, with different shapes and profiles, used in workshops, turner's shops and general mechanical structural work.
- Only one operator is needed to use the machine, that must stand as shown in the picture.






- Before starting each cutting operation, ensure that the part is firmly gripped in the vice and that the end is suitably supported. These figures show examples of suitable clamping of different section bars, bearing in mind the cutting capacities of the machine in order to achieve a good efficiency and blade durability.



- Do not use blades of a different size from those stated in the machine specifications.
- If the blade gets stuck in the cut, release the running button immediately, switch off the machine, open the vice slowly, remove the part and check that the blade or its teeth are not broken. If they are broken, change the tool.
- Check saw frame return spring to ensure proper balancing.
- Before carrying out any repairs on the machine, consult the dealer or apply to THOMAS.

3 TECHNICAL CHARACTERISTICS

3.1 - Table of cutting capacity and technical details

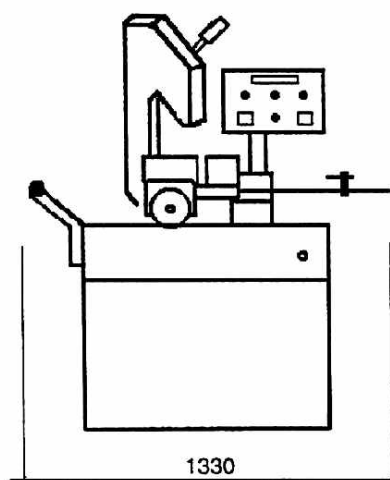
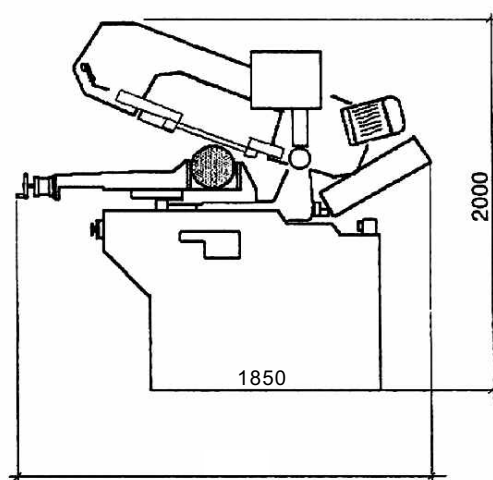
			
0°	255	230	315 x 230
-45° DX	195	195	195 x 230
-60° DX	115	115	115 x 160
45° SX	160	160	160 x 160

TECHNICAL DATA

BLADE MOTOR	Kw	1.5
COOLANT LIQUID MOTOR	Kw	0,11
BLADE DIMENSIONS	mm	2750 × 27 × 0,9
FLYWHEEL φ	mm	330
CUTTING SPEED	m/1'	35-70
VICE OPENING	mm	310
WORKING TABLE HEIGHT	mm	950
MACHINE WEIGHT	kg	380

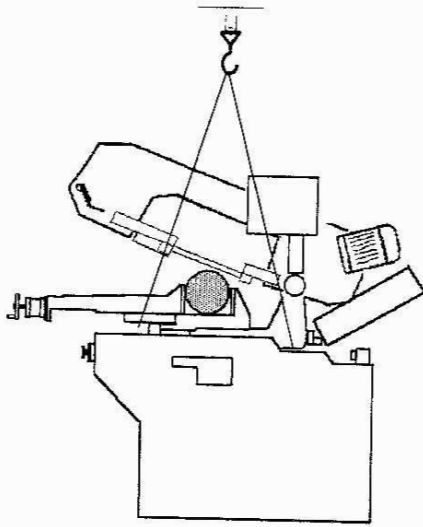
4 MACHINE DIMENSIONS 4 TRANSPORT INSTALLATION DISMANTLING

4.1 - Machine dimensions



4.2 - Transport and handling of the machine

If the machine has to be shifted in its own packing, use a forklift truck or sling it with straps as illustrated.



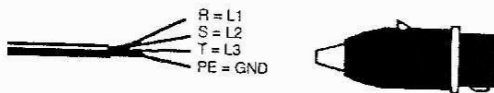
4.3 - Minimum requirements for the premises housing the machine

- Mains voltage and frequency complying with the machine motor characteristics.
- Environment temperature from -10°C to $+50^{\circ}\text{C}$.
- Relative humidity not over 90%

4.4 - Instructions for electrical connection

- The machine is not provided with an electric plug, so the customer must fit a suitable one for his own working conditions:

1 - WIRING DIAGRAM FOR 4-WIRE SYSTEM FOR THREE-PHASE MACHINE-SOCKET FOR A 16A PLUG



4.5 - Instructions for assembly of the loose parts and accessories

Fit the components supplied as indicated in the photo:

- Mount bar-stop rod
- Mount and align the roll supporting arm as per the countervise table.

4.6 - Disactivating the machine

- If the sawing machine is to be out of use for a long period, it is advisable to proceed as follows:

- 1) detach the plug from the electric supply panel
- 2) loosen blade
- 3) release the arch return spring
- 4) empty the coolant tank
- 5) carefully clean and grease the machine
- 6) if necessary, cover the machine.

4.7 - Dismantling

(because of deterioration and/or obsolescence)

General rules

If the machine is to be permanently demolished and/or scrapped, divide the material to be disposed of according to type and composition, as follows:

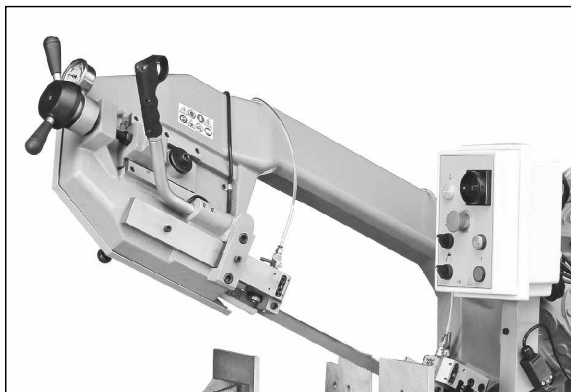
- 1) Cast iron or ferrous materials, composed of metal alone, are **secondary raw materials**, so they may be taken to an iron foundry for re-smelting after having removed the contents (classified in point 3);
- 2) electrical components, including the cable and electronic material (magnetic cards, etc.), fall within the category of material classified as being assimilable to urban waste according to the laws of the European community, so they may be set aside for collection by the public waste disposal service;
- 3) old mineral and synthetic and/or mixed oils, emulsified oils and greases are special refuse, so they must be collected, transported and subsequently disposed of by the old oil disposal service.

NOTE: since standards and legislation concerning refuse in general is in a state of continuous evolution and therefore subject to changes and variations, the user must keep informed of the regulations in force at the time of disposing of the machine tool, as these may differ from those described above, which are to be considered as a general guide line.

5 MACHINE FUNCTIONAL PARTS

5.1 - Operating head or saw frame

- Machine part consisting of the members that transfer the motion (gearmotor, flywheels), and tension/guide (blade-guides, blade tension slide) and lowering control (optional) of tool.



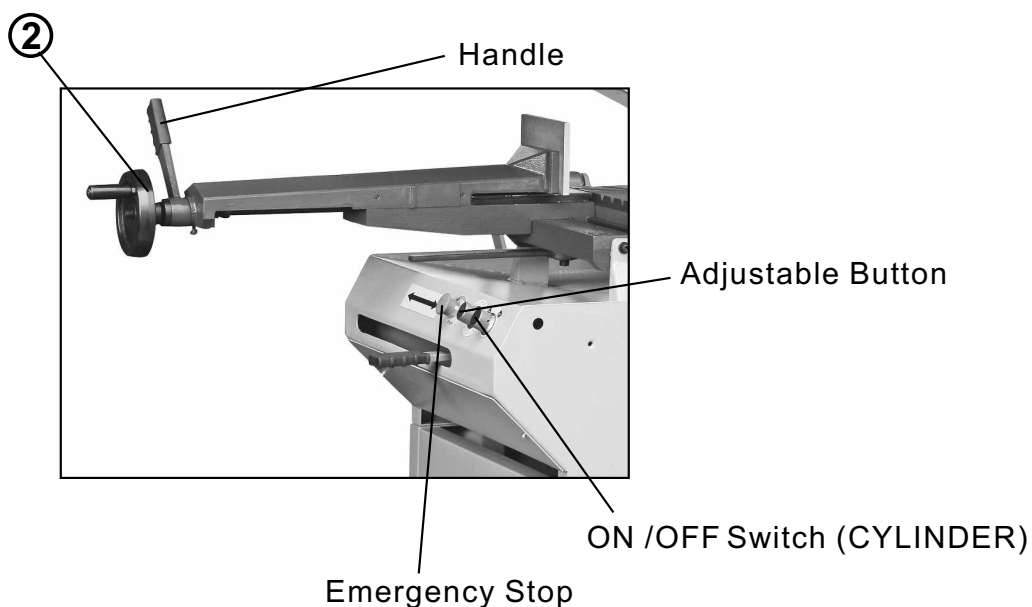
5.3 - Bed

- Support structure for the OPERATING HEAD OR SAW FRAME (rotating arm for gradual cutting, with respective blocking system), the ELECTRIC BOX, the VICE, the BAR STOP, the material support ROLLER and the housing for the cutting coolant TANK and pump.



5.2- Vice

- System for clamping the material during the cutting operation, operated with approach handwheel and locking lever or by a pneumatic device (optional).



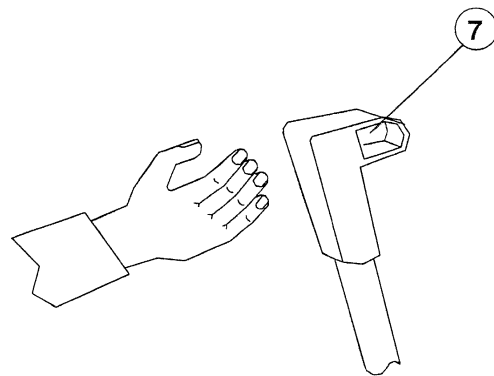
6 DESCRIPTION OF THE OPERATING CYCLE

Before operating, all the main organs of the machine must be set in optimum conditions (see the chapter on "Regulating the machine").

6.1 - Starting up and cutting cycle

CUTTING CYCLE

- Manual vice locking;
 - Manual sawframe downfeed;
 - Manual sawframe lift;
 - Manuale vice opening.
- Make sure the machine is not in emergency stop; if so, release the red mushroom push-button.
 - Rotate the band tightening flywheel (2) counterclockwise and the rapid tightening lever towards the left against the mechanical stop
 - Select the cutting speed on switch
- position 1 = 36 m/min
- position 2 = 72 m/min
- ATTENTION: Make sure that the vice has been positioned to the far right or left of the countervise to avoid accidental impact with the sawblade. ALSO make sure that the relevant lever has been locked (also see Chapter 7 paragraph 7.4).
- Place the piece to be cut inside the vice by moving jaw to about 3-4mm and lock with lever(8).
 - Stricke the strat/reset push-button
 - If saw is supplied with a saw frame lowering control device, adjust it so as to suit the feaures and the shape of the material to be cut.
 - Reach for handgrip (7) of the SAW FRAME control lever, strike the push-button and check that the blade is tuning in the direction indicated (if not, invert the tow phase leads);
 - Make sure that the cooling liquid flows regularly.



The band saw is now ready to start work, bearing in mind that the CUTTING SPEED and the TYPE of BLADE - combined with a suitable descent of the head - are of decisive importance for cutting quality and for machine performance (for further details on this topic, see below in the chapter on "Material classification and blade selection").

- When starting to cut with a new blade, in order to safeguard its life and efficiency, the first two or three cuts must be made while exerting a slight pressure on the part, so that the time taken to cut is about double the normal time (see below in the chapter on "Material classification and blade selection" in the section on Blade running-in).
- Press the red emergency button when there are conditions of danger or malfunctions in general, so as to stop machine operation immediately.

6.2. Foundation requirement

The foundation of the machine should be concrete with 150mm in depth. No special vibration absorption rubber is needed.

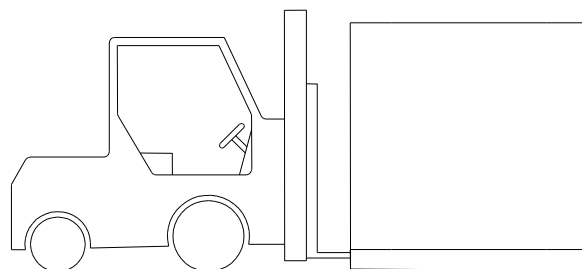
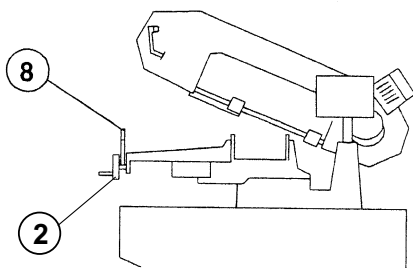
6.3. Unpacking

(Pile 2 sets only)

Removing first the top cover of the wooden case, carefully taking out fittings, stripping the side plates, then hoist the machine to its position.



Keep your hands off the cutting area



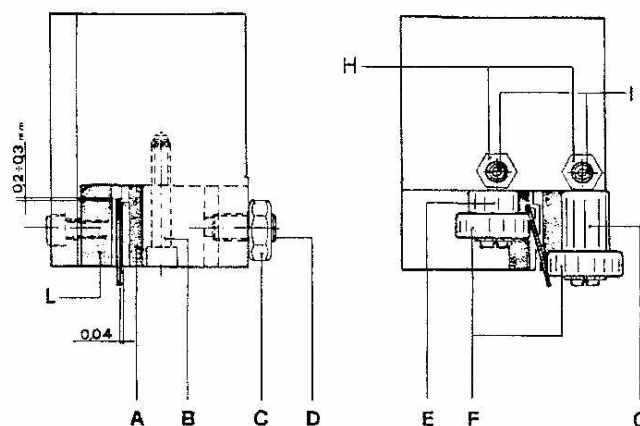
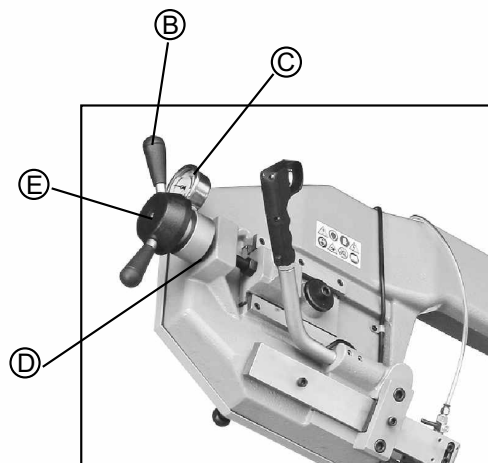
7 REGULATING THE MACHINE

7.1 - Blade tension assembly

The ideal tightening of the blade is achieved by rotating the blade tightening handwheel (B) towards the left against the mechanical stop pin. Ideal tightening of the blade read on the relative pressure bar (C)

Note: In case the saw is not used for a period of time, release blade pressure to the green area.

Always use blade having the dimensions specified in this manual.



In case the blade needs to be replaced, make sure to always install 0.9 mm thick blades for which the blade guide pads have been adjusted. In the case of toothed blades with different thicknesses adjustment should be carried out as follows:

- Loosen nut(C), screw(B) and loosen dowel(D) widening the passage between the pads.
- Loosen the nuts(H) and the dowels(I) and rotate the pins (E-G) to widen the passage between the bearings(F).
- Mount the new blade, place the pad(A) on the blade and, loosening the dowel, allow a play of 0.04 mm for the sliding of the toothed blade; lock the relative nut and screw(B);
- Rotate the pins (E-G) until the bearings rest against the blade as indicated in the figure and then secure the dowels (I) and nut(H).
- Make sure that between the blade and the upper teeth of the pad(L) this is at least 0.2 - 0.3mm of play; if necessary, loosen the screws that fasten the blocks and adjust accordingly.

7.2 - Restoring oil level on blade tightening cylinder

The blade pressure can be read on the pressure gauge (C), mounted on the relative blade tightening cylinder allowing constant display of the blade tension.

Ideal tightening of the blade

Should any problems in the monitoring of the tension occur, this may be caused by the reduced capacity inside the blade tightening cylinder due to an oil leak.

Simply push the blade tightening cylinder stem (E) back into place and then restoring oil level through plug(D).

Use SHELL HYDRAULIC OIL 32 type oil or similar.

When this operation has been completed close the plug(D) and tighten the blade.

7.3-Blade guide blocks

The blade is guided by means of adjustable pads set in place during inspection as per the thickness of the blade with minimum play as shown in the figure.

BEFORE PERFORMING THE-FOLLOWING OPERATIONS, THE ELECTRIC POWER SUPPLY AND THE POWER CABLE MUST BE COMPLETELY DISCONNECTED.

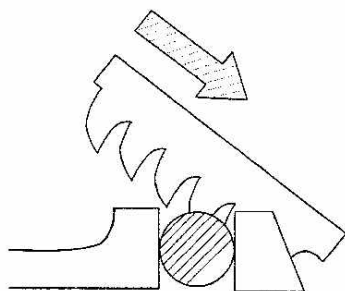
7.4 - Changing the blade

In case the blade is replaced:

- Lift the saw frame in upmost position.
- Loosen the blade with the handwheel, remove the mobile blade-guide cover, open the flywheel guard and remove the old blade from the flywheels and the blade guide blocks.
- Install the new blade by threading it into the bloc bearings and then inside the flywheel races. Make sure that teeth are in the cutting direction.
- Tighten blade and make sure that it perfectly fits inside the race of the flywheels.
- Mount the mobile blade-guide cover and close the flywheel guard with the relative clips and check that the safety microswitches are actuated otherwise the machine will not start when you restore electrical connections.

WARNING: always assemble blades having dimensions specified in this manual and for which the blade guide heads have be set: otherwise, see chapter on "Description of the operating cycle" in the section Starting-up.

CUTTING DIRECTION



7.5-Replacing saw frame return spring

- When performing this operation it is necessary to keep saw frame up using the lifting device.
- Replace the spring by loosening the upper coupling rod and releasing it from the lower tie-rod.

8 ROUTINE AND SPECIAL MAINTENANCE

THE MAINTENANCE JOBS ARE LISTED BELOW, DIVIDED INTO DAILY, WEEKLY, MONTHLY AND SIX-MONTHLY INTERVALS. IF THE FOLLOWING OPERATIONS ARE NEGLECTED, THE RESULT WILL BE PREMATURE WEAR OF THE MACHINE AND POOR PERFORMANCE.

8.1 - Daily maintenance

- General cleaning of the machine to remove accumulated shavings.
- Clean the lubricating coolant drain hole to avoid excess fluid.
- Top up the level of lubricating coolant.
- Check blade for wear.
- Rise of saw frame to top position and partial slackening of the blade to avoid useless yield stress.
- Check functionality of the shields and emergency stops.

8.2 - Weekly maintenance

- More accurate general cleaning of the machine to remove shavings, especially from the lubricant fluid tank.
- Removal of pump from its housing, cleaning of the suction filler and suction zonz.
- Clean the filter of the pump suction head and the suction area.
- Cleaning with compressed air the blade guide heads (guide bearings and drain hole of the lubricating cooling).
- Cleaning flywheel housings and blade sliding surfaces on flywheels.
- Check condition of the blade cleaning brushes.

8.3 - Monthly maintenance

- Check the tightening of the motor flywheel screws.
- Check that the blade guide bearings on the heads are perfect running condition.
- Check the tightening of the screws of the gearmotor, pump and accident protection guarding.

8.4 - Six-monthly maintenance

REDUCTION UNIT

- The worm drive gear box mounted on the machine is maintenance-free guaranteed by its manufacture.
- Continuity test of the equipotential protection circuit.

8.5 - Oils for lubricating coolant

Considering the vast range of products on the market, the user can choose the one most suited to his own requirements, using as reference the type SHELL LUTEM OIL ECO.

THE MINIMUM PERCENTAGE OF OIL DILUTED IN WATER IS 8-10 %.

8.6 - Oil disposal

The disposal of these products is controlled by strict regulations. Please see the chapter on "**Machine dimensins** - Transport - Installation" in the section on *Dismantling*.

8.7 - Special maintenance

Special maintenance operations must be carried out by skilled personnel. However, we advise contacting their dealer and/or importer. Also the reset of protective and safety equipment and devices, of the reducer , the motor, the motor pump and electric components is to be considered extraordinary maintenance.

9 MATERIAL CLASSIFICATION AND CHOICE OF TOOL

Since the aim is to obtain excellent cutting quality, the various parameters such as hardness of the material, shape and thickness, transverse cutting section of the part to be cut, selection of the type of cutting blade, cutting speed and control of saw frame lowering. These specifications must therefore be harmoniously combined in a single operating condition according to practical considerations and common sense, so as to achieve an optimum condition machine when there are many variations in the job to be performed. The various problems that crop up from time to time will be solved more easily if the operator has a good knowledge of these specifications.

WE THEREFORE RECOMMEND YOU TO ALWAYS USE GENUINE SPARE BLADES THAT GUARANTEE SUPERIOR QUALITY AND PERFORMANCE.

9.1- Definition of materials

The table at the foot of this page lists the characteristics of the materials to be cut, so as to choose the right tool to use.

9.2 - Selecting blade

First of all the pitch of the teeth must be chosen, in the other

words, the number of teeth per inch (25.4mm) suitable for the material to be cut, according to these criteria:


- parts with a thin and/or variable section such as profiles, pipes and plate, need close toothing, so that the number of teeth used simultaneously in cutting is from 3 to 6;
- parts with large transverse sections and solid sections need widely spaced toothing to allow for the greater volume of the shavings and better tooth penetration;
- parts made of soft material or plastic (light alloys, mild bronze, teflon, wood, etc.) also require widely spaced toothing;
- pieces cut in bundles require combo tooth design.

9.3 - Teeth pitch

As already stated, this depends on the following factors:

- **hardness of the material**
- **dimensions of the section**
- **thickness of the wall.**

BLADE TEETH SELECTION TABLE		
THICKNESS MM	Z CONTINUOUS TOOTH DESIGN	Z COMBO TOOTH DESIGN
TILL 1.5	14	10/14
FROM 1 TO 2	8	8/12
FROM 2 TO 3	6	6/10
FROM 3 TO 5	6	5/8
FROM 4 TO 6	6	4/6
MORE THAN 6	4	4/6

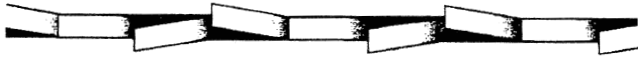


S = THICKNESS

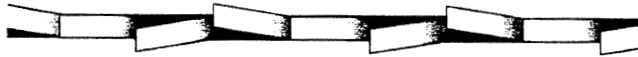
TYPES OF STEEL						CHARACTERISTICS		
USE	I UNI	D DIN	F AF NOR	GB SB	USA AISI-SAE	Hardness ROCKWELL HRB	Hardness ROCKWELL HRB	R=N/mm2
Construction steels	Fe360	St37	E24	---	---	116	67	360+480
	Fe430	St44	E28	43	---	148	80	430+560
	Fe510	St52	E36	50	---	180	88	510+660
Carbon Steels	C20	CK20	XC20	060 A 20	1020	198	93	540+690
	C40	CK40	XC42H1	060 A 40	1040	198	93	700+840
	C50	CK50	---	---	1050	202	94	760+900
	C60	CK60	XC55	060 A 62	1060	202	94	830+980
Spring steels	50CrV4	50CrV4	50CV4	735 A 50	6150	207	95	1140+1330
	60SiCr8	60SiCr7	---	---	9262	224	98	1220+1400
Alloyed steels for hardening and tempering and for nitriding	35CrMo4	34CrMoO4	35CD4	708 A 37	4135	220	98	780+930
	39NiCrMo4	36CrNiMoO4	39NCD4	---	9840	228	99	880+1080
	41CrAlMo7	41CrAlMo7	40CADG12	905 M 39	---	232	100	930+1130
Alloyed casehardening steels	18NiCrMo7	---	20NCD7	En 325	4320	232	100	760+1030
	20NiCrMo2	21NiCrMo2	20NCD2	805 H 20	4315	224	98	690+980
Alloyed for bearings	100Cr6	100Cr6	100C6	534 A 99	52100	207	95	690+980
Tool steel	52NiCrMoKU	56NiCrMoV7C100K	---	---	---	244	102	800+1030
	C100KU	C100W1	---	BS1	S-1	212	96	710+980
	X210Cr13KU	X210Cr12	Z200C12	BD2-BD3	D6-D3	252	103	820+1060
	58SiMo8KU	---	Y60SC7	---	S5	244	102	800+1030
Stainless steels	X12Cr13	4001	---	---	410	202	94	670+885
	X5CrNi1810	4301	Z5CN18.09	304 C 12	304	202	94	590+685
	X8CrNi1910	---	---	---	---	202	94	540+685
	X8CrNiMo1713	4401	Z6CDN17.12	316 S 16	316	202	94	490+685
Copper alloys Special brass Bronze	Aluminium copper alloy G-CuAl11Fe4Ni4 UNI 5275					220	98	620+685
	Special manganese/silicon brass G-CuZn36Si1Pb1 UNI5038					140	77	375+440
	Manganese bronze SAE43 - SAE430					120	69	320+410
	Phosphor bronze G-CuSn12 UNI 7013/2a					100	56.5	265+314
Cast iron	Gray pig iron					212	96	245
	Spheroidal graphite cast iron					232	100	600
	Malleable cast iron					222	98	420

Set

Saw teeth bent out of the plane of the saw body, resulting in a wide cut in the workpiece.



REGULAR OR RAKER SET: Cutting teeth right and left, alternated by a straight tooth.



Of general use for materials with dimensions superior to 5 mm. Used for the cutting of steel, castings and hard nonferrous materials.

WAVY SET: Set in smooth waves.



This set is associated with very fine teeth and it is mainly used for the cutting of pipes and thin section bars (from 1 to 3 mm).

ALTERNATE SET (IN GROUPS): Groups of cutting teeth right and left, alternated by a straight tooth.



This set is associated with very fine teeth and it is used for extremely thin materials (less than 1 mm).

ALTERNATE SET (INDIVIDUAL TEETH): Cutting teeth right and left.

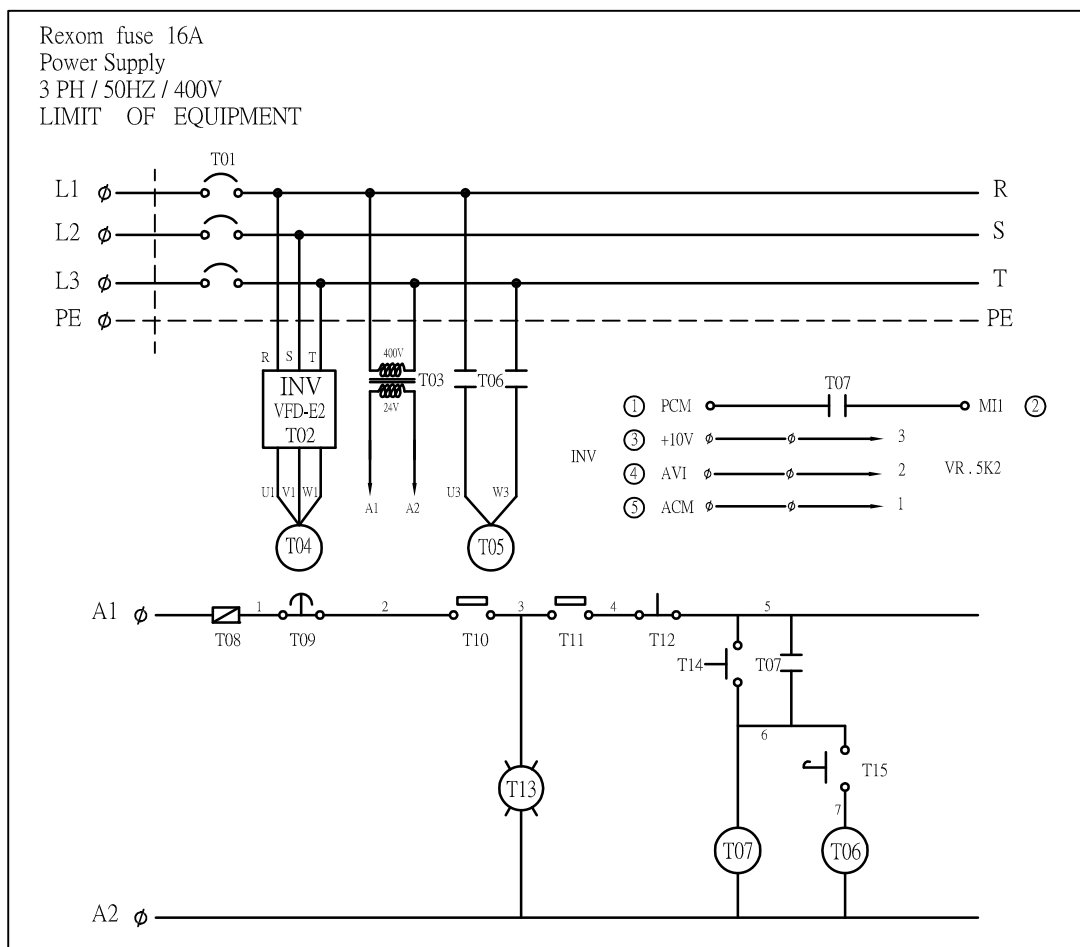


This set is used for the cutting of nonferrous soft materials, plastics and wood.

9.7.1 - RECOMMENDED CUTTING PARAMETERS

STEEL	CUTTING SPEED	LUBRICATION
CONSTRUCTION	60/80	EMULSIFIABLE OIL
CEMENTATION	40/50	EMULSIFIABLE OIL
CARBON STEEL	40/60	EMULSIFIABLE OIL
HARDENING AND TEMPERING	40/50	EMULSIFIABLE OIL
BEARINGS	40/60	EMULSIFIABLE OIL
SPRINGS	40/60	EMULSIFIABLE OIL
FOR TOOLS	30/40	EMULSIFIABLE OIL
FOR VALES	35/50	EMULSIFIABLE OIL
STAINLESS STEEL	30/40	EMULSIFIABLE OIL
SPHEROIDAL GRAPHITE	20/40	EMULSIFIABLE OIL
CAST IRON	40/60	EMULSIFIABLE OIL
ALUMINIUM	80/600	KEROSENE
BRONZE	70/120	EMULSIFIABLE OIL
HARD BRONZE	30/60	EMULSIFIABLE OIL
BRASS	70/350	EMULSIFIABLE OIL
COPPER	50/720	EMULSIFIABLE OIL

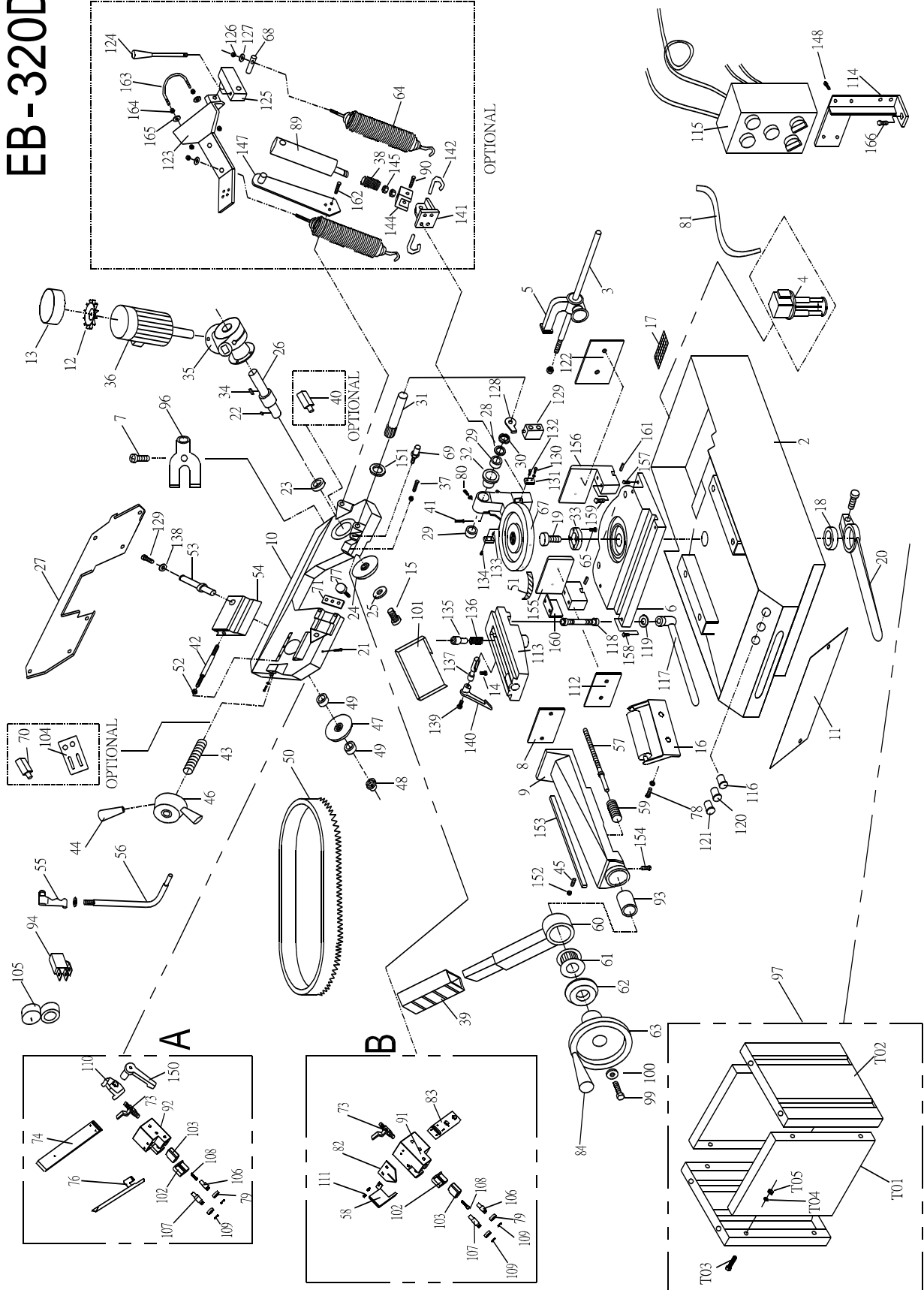
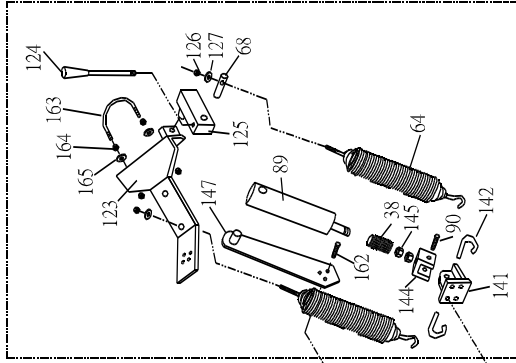
ELECTRICAL CIRCUIT DIAGRAM EB-320 DSV



Electrical parts list

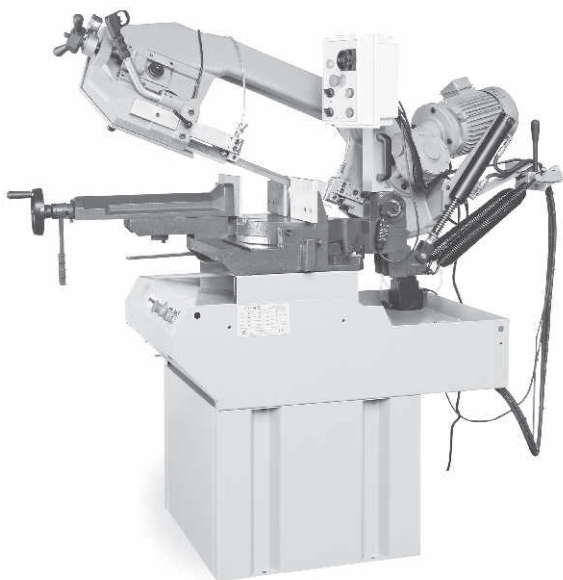
Part No	Name	Dscription	Producer	Mark
T01	POWER	CAM SWITCH	SAIZER	CE
T02	INV	INVERTER	AB	CE
T03	TR	TRANSFORMER	GOROGE	CE
T04	M1	SAW MOTOR	GOROGE	CE
T05	M2	PUMP MOTOR	GOROGE	CE
T06	R1	RELAY	RY	CE
T07	R2	RELAY	RY	CE
T08	F1	FUSE	DEMEX	CE
T09	EMS1	EMERGENCY STOP	CIRO	CE
T10	SAFE MICRO	MICRO SWITCH	HAILY	CE
T11	DOWN MICRO	MICRO SWITCH	CT	CE
T12	OFF	O SWITCH	TEND	CE
T13	LAMP	POWER LAMP	TEND	CE
T14	ON	I SWITCH	TEND	CE
T15	COOL	COOL SWITCH	TEND	CE

EB-320DSV



PARTS LIST 96' &\$8 GJ

Ref. No. Description	Ref. No. Description	Ref. No. Description
2. Base/底座	57.Vice screw/角牙桿	116.On /Off Oil Switch/油壓開關
3. Barstop rod/長度桿	58.R. Blade guard/保護片(右)	117.Handle/把柄
4. Cool pump/冷卻馬達	59.Vicespring/彈簧	118.Bolt/螺栓
5. Barstop/長度板	60.Vice lever/虎鉗柄	119.Washer/華司
6. Countervise/虎鉗下座	61.Bearing 51105/培林	120.Adjusting Button/調整按鈕
7. Screw M5/螺絲	62.Bearing cover/培林蓋	121.Emergency Stop/緊急停止
8. Vice jaw/前檔板	63.Vice hand wheel/手輪	122.Screw/螺絲
9. Vice/虎鉗上座	64.Spring/彈簧	123.Bracket/彈簧支架
10.Body frame/鋸弓	65.Screw/螺絲	124.Handle/手柄
11.Casing/底座蓋	67.Revolving arm/旋轉座	125.Square/旋轉塊
12.Motor Fan/馬達風葉	68.Shaft/心軸	126.Nut/螺帽
13.Motor Cover/馬達蓋	69.Stop bolt/固定軸	127.Washer/華司
14.Screw/螺絲	70.Micro switch(optional)/ 微動開關	128.Cut off plate/切斷片
15.Screw/螺絲	71.Block/固定板	129.Screw/螺絲
16.Roller/滾筒	73.Rubber connection/冷卻螺絲	130.Screw/螺絲
17.Filter/網	74.Arm/長支架	131.Vice Jaw block/檔塊
18.Bush/旋轉螺帽	75.Bolt/螺栓	132.Screw/螺絲
19.Pin/旋轉軸	76.Blade guard/長保護片	133.Screw/螺絲
20.Lever/旋轉柄(把手)	77.Handle/任意把手	134.Screw/螺絲
21.Knob/鈕	79.Bearing 6082Z/培林	135.Crescent seat/半牙座
22.Key 7x7/鍵	80.Screw M8/螺絲	136.Spring/彈簧
23.Bearing 6208/培林	81.Water pipe/水管	137.Shaft/心軸
24.Motor flywheel/下鋸輪	82.Rust plate/擋屑板	138.Washer/華司
25.Washer/蓋	83.Vice pad/虎鉗墊	139.Screw/螺絲
26.Shaft/鋸輪主軸	84.Handle/把手	140.Grip/把手
27.Blade cover/鋸弓護蓋	89.Hydraulic cylinder/油壓缸	141.Cylinder seat/油壓缸座
28.Ring nilons/套環	90.Pin/油壓缸螺絲	142.Spring hook/彈簧鉤
29.Bearing 32007/培林	91.Fixed blade guide plate/培林座	144.□ seat/□型座
30.Ring nut M30/主軸帽	92.Mobile blade guide plate/ 大培林座	145.Nut/螺帽
31.Pivot/支架軸	93.Bush/虎鉗套管	147.Braket/油壓缸支架
32.Bearing cover/培林蓋	94.Togerswitch/(手切)微動開關	148.Screw/螺絲
33.Washer/華司	95.Condenser(motor)(optional)/ 電容器	150.Grip/把手
34.Key 4x25/鍵	96.Coolant distributor/水分頭	151.Gasket/墊片
35.Reducer/齒輪箱	97.Stand/腳架	152.Nut/螺帽
36.Motor/馬達	99.Screw M8*15/螺絲	153.Key/鍵片
37.Screw/螺絲	100.Washer/華司	154.Screw/螺絲
38.Spring/彈簧	101.Plate/水盤	155.Vice seat L./左虎鉗座
39.Plastic case/手把套	102.Blade guide unitsquare/ 鋤鋼導塊(方型)	156.Vice seat R./右虎鉗座
40.Micro switch(optional)/ 微動開關	103.Blade guide unit/鋤鋼導塊	157.Screw/螺絲
41.Screw M8/螺絲	104.Blade tension guide(optional) /開關架	158.Screw/螺絲
42.Threaded shaft/拉塊桿	105.Blade tension gauge/壓力錶	159.Screw/螺絲
43.Spring washer/彈簧片	106.Guide pivot/支架軸	160.L Board/L板
44.Grip/調整栓柄	107.Guide pivot/支架軸	161.Square Key/方鍵
45.Pin/調整螺絲	108.33MM*MS Screw/螺絲	162.Screw/螺絲
46.Hand wheel/手輪	109.C-ring/C型扣	162.Screw/螺絲
47.Return flywheel/上鋸輪	110.Fixed plate/壓板	164.Nut/螺帽
48.Hex. Nut/螺帽	111.Screw/螺絲	165.Washer/華司
49.Bearings 32006/培林	112.Vice jaw/前檔板	166.Screw/螺絲
50.Saw blade/鋸片	113.Vice sliding seat/虎鉗滑座	
51.Scale/表尺	114.Switch Bracket/開關支架	
52.Hex. Nuts/螺帽	115.Electrical box/電器盒	
53.Blade sheel shaft/上鋸輪軸		
54.Block blade tension/滑座		
55.Handle/手柄		
56.Lever/手柄桿		



**METAL CUTTING
BAND SAW MACHINE
EB-320DSV**

Instruction Manual

Standard Equipment

Bimetal saw blade

Cooling pump

Magnetic switch & CE

Stand