INSTRUCTION MANUAL

EB-351DSA
Semi - Automatic, Swivel Head-Dual Mitre Metal Cutting Band Saw (415V)
345 x 205mm (W x H) Rectangle

B072

PLANT SAFETY PROGRAMME

NEW MACHINERY HAZARD IDENTIFICATION, ASSESSMENT & CONTROL

Stock Code: B072

Description: Metal Cutting Bandsaw **Model:** EB-351DSA **Brand:** HAFCO

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. Machine should be installed & checked by a Licensed Electrician.
O	OTHER HAZARDS, NOISE.	LOW	Wear hearing protection as required.
Plant Safety Program to be read in conjunction with manufactures instructions			

HARE & FORBES MACHINERYHOUSE
ABN 96 000 286 957

"THE JUNCTION" 2 WINDSOR ROAD, NORTHMEAD NSW 21
Phone (02) 9890 9111 Fax (02) 9890 3888

Authorised and signed by:
Safety officer: .....
Manager: .....
Date: Mar-02

1 REFERENCE TO ACCIDENT - PREVENTION REGULATIONS

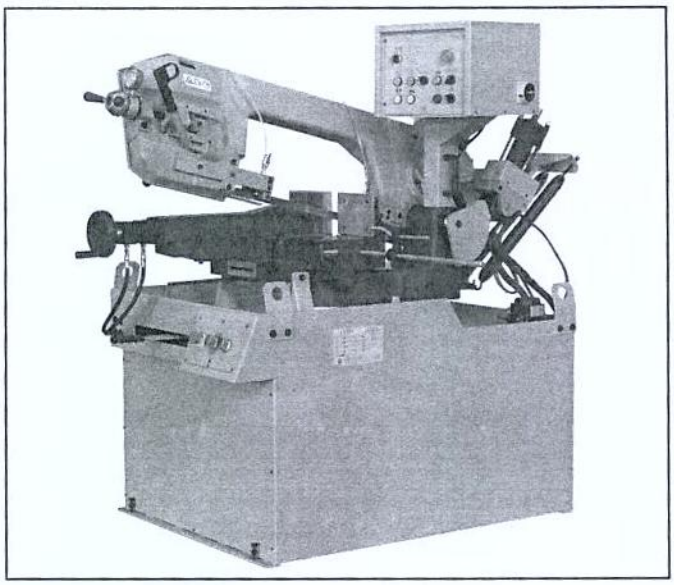
This machine has been built to comply with the national and community accident-prevention regulations in force. Improper use and/or tampering with the safety devices will relieve the manufacturer of all responsibility.

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 European 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 equipement 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"

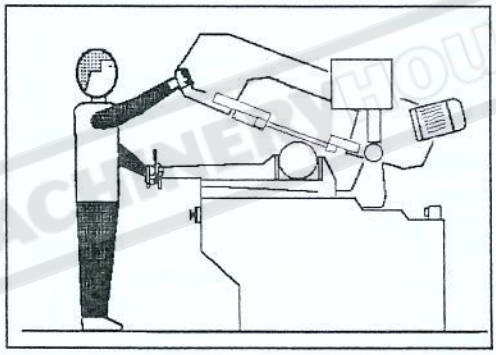
- In the event of incorrect operation or of danger conditions, the machine may be stopped immediately by pressing the red mushrom button.
- The casual or voluntary removal of the protection shield of the flywheels causes the stepping-in of a microswitch that automatically stops all machine functions.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

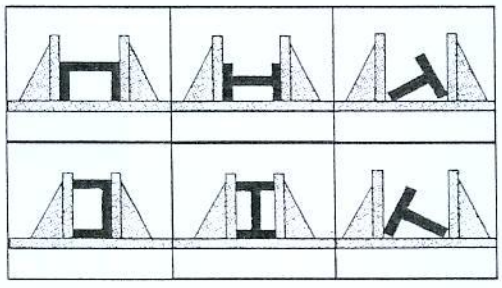
2.1 - Recommendations and advice for using the machine

- 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 form 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

3 TECHNICAL CHARACTERISTICS

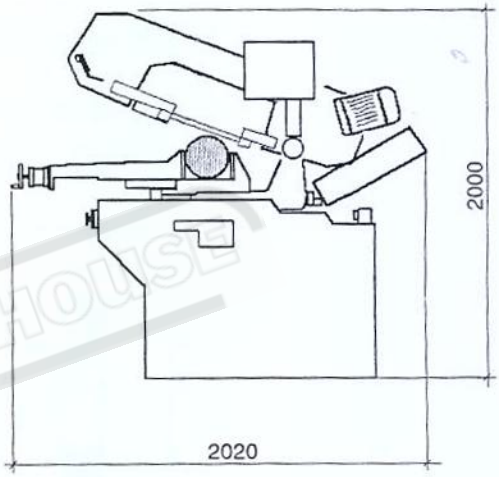
3.1 - Table of cutting capacity and technical details

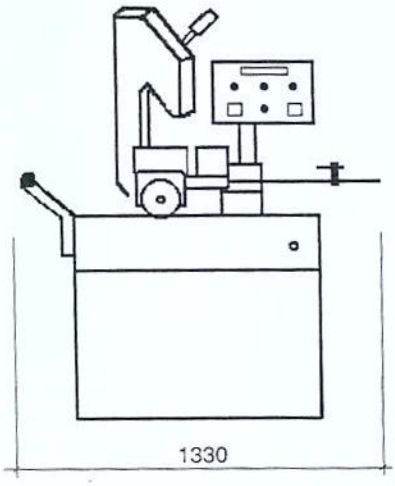
	○	□	▭
90°	270	260	350×240
45° DX	230	210	230×150
45° SX	200	170	200×140
60° DX	140	140	140×140

TECHNICAL DATA		
BLADE MOTOR	Kw	1.9/2.2
COOLANT LIQUID MOTOR	Kw	0,11
BLADE DIMENSIONS	mm	2925 × 27 × 0.9
FLYWHEEL φ	mm	330
CUTTING SPEED	m/1'	36-72
VICE OPENING	mm	355
SAWFRAME INCLINATION	°	30
WORKING TABLE HEIGHT	mm	940
MACHINE WEIGHT	kg	650

4 MACHINE DIMENSIONS TRANSPORT INSTALLATION DISMANTLING

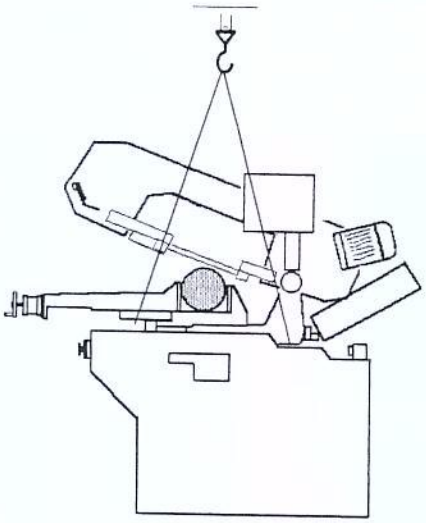
4.1 - Machine dimensions





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.



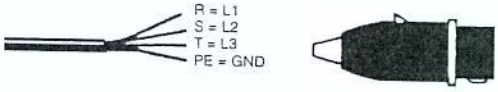
4.3 - Minimum requirements for the premises housing the machine

- Mains voltage and frequency complying with the machine motor characteristics.
- Environment temperature from -10℃ to +50℃.
- Relative humidity not over 90%

4.4 - Instructions for electrical connention

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

1 - WIRING DIAGAM 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 countervice 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

(bacause 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:

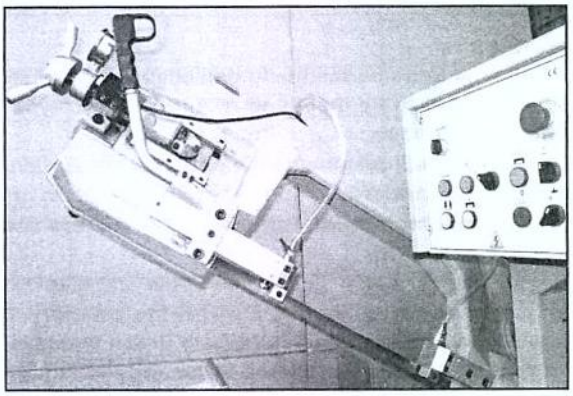
1) Cast iron or ferrous materials, composed of metal alone, are **secondary raw materials**, so they may be taken to an iron foundry for re-smelting after having removed the contents (classified in point3);
2) electrical components, including the cable and electronic material (magnetic cards, etc.), 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 subseqently disposed of by the old oil disposal service.

NOTE: since standards and legislation concerning refuse in general is in a state of continous 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

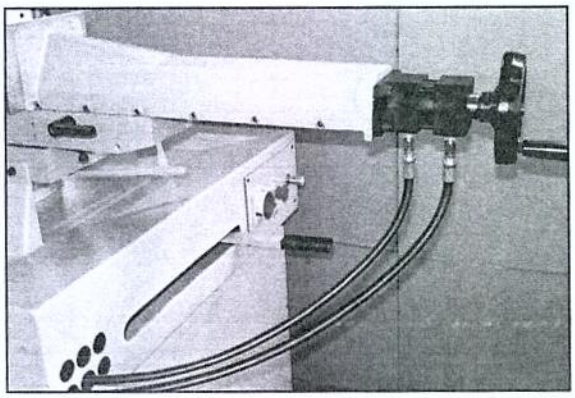
5.1 - Operating head or saw frame

- 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.



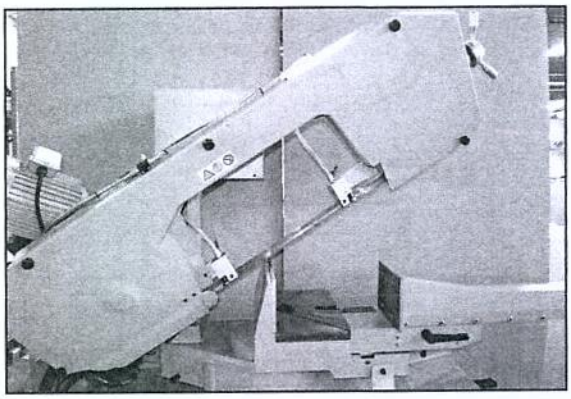
5.2- Vice

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



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.



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 swich

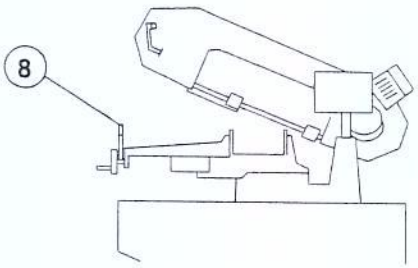
position 1 = 36 m/min

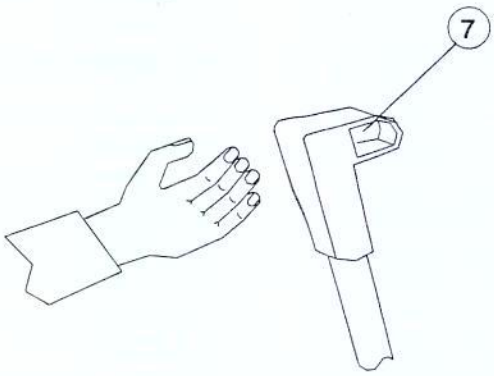
position 2 = 72 m/min

ATTENTION: Make sure that the vice has been positioned to the far right or left of the countervice 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 start/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 turning in the direction indicated (if not, invert the tow phase leads);.
- Make sure that the cooling liquid flows regularly.

Keep your hands off the cutting area





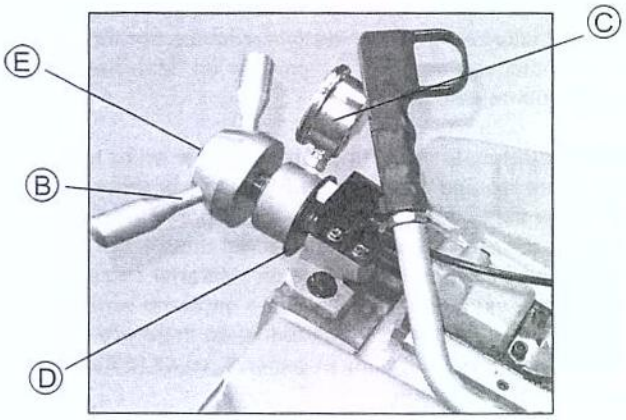
The band saw is now ready to start work, bearing in mind that the CUTTING SPEED and the TYPE of BLADE - combined with a suitable descent of the head - are of decisive importance for cutting quality and for machine performance (for further details on this topic, see below in the chapter on "Material classification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

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 aobut 60-70 BAR.
Always use blade having the dimensions specified in this manual.

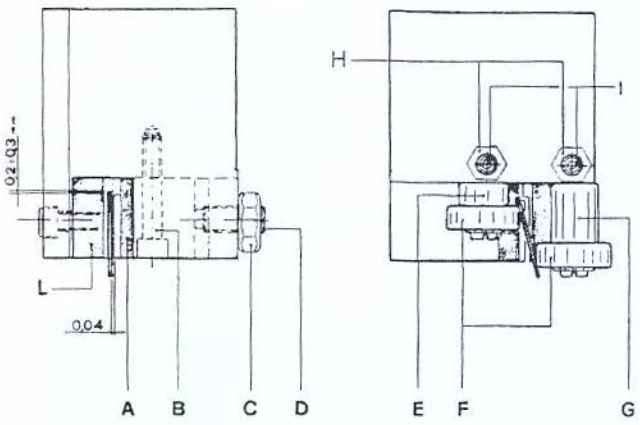


7.2 - Restoring oil level on blade tightening cylinder

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

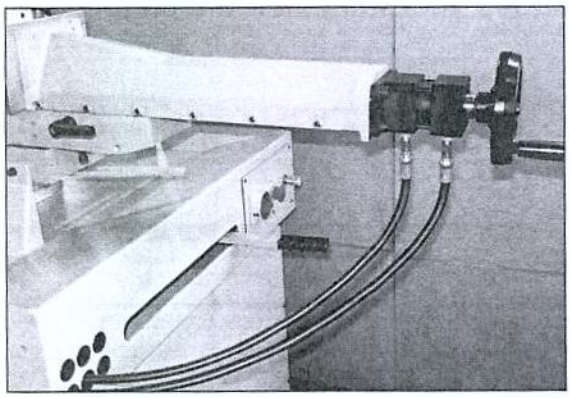
The blade is guided by means of adjustable pads set in place during inspection as per the thickness of the blade with minimum play as shown in the figure.



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 unts(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 lest 0.2 - 0.3mm of play; if necessary, loosen the screws that fasten the blocks and adjust accordingly.

7.4 - Vice

- The vice can be positioned either to the right to the left of the blade. Tight Lever(2) after positioning the vice to the far right/left. The vice can slide very quickly by meand of the handle(1); in case the the vice moves too loose along the guide, tight the screws(3).
- Approach the vice jaw allowing 3-4 mm clearance between jaw and material.



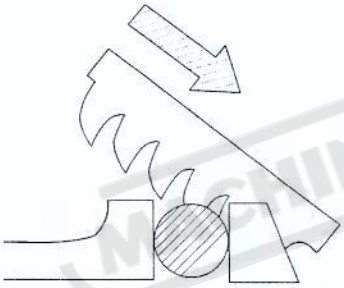
BEFORE PERFORMING THE FOLLOWING OPERATIONS, THE ELECTRIC POWER SUPPLY AND THE POWER CABLE MUST BE COMPLETELY DISCONNECTED.

7.8 - 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



7.9-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 MIAINTENANCE 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 zone.
- 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 dimentions** - 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 air 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 it the operator has a good knolede 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 th page lists the characterisstics 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 thematerial to be cut, accordintg 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 factiors:

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

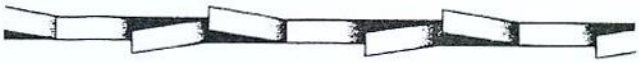
BLADE TEETH SELECTION TABLE

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

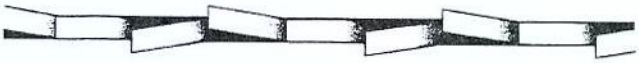
TYPES OF STEEL						CHARACTERISTICS		
USE	I UNI	D DIN	F AF NOR	GB SB	USA AISI-SAE	Hardness ROCKWELL HRB	Hardness ROCKWELL HRB	R=N/mm2
Construction steels	Fe360 Fe430 Fe510	St37 St44 St52	E24 E28 E36	---- 43 50	---- ---- ----	116 148 180	67 80 88	360÷480 430÷560 510÷660
Carbon Steels	C20 C40 C50 C60	CK20 CK40 CK50 CK60	XC20 XC42H1 ---- XC55	060 A 20 060 A 40 ---- 060 A 62	1020 1040 1050 1060	198 198 202 202	93 93 94 94	540÷690 700÷840 760÷900 830÷980
Spring steels	50CrV4 60SiCr8	50CrV4 60SiCr7	50CV4 ----	735 A 50 ----	6150 9262	207 224	95 98	1140÷1330 1220÷1400
Alloyed steels for hardening and tempering and for nitnding	35CrMo4 39NiCrMo4 41CrAlMo7	34CrMoO4 36CrNiMoO4 41CrAlMo7	35CD4 39NCD4 40CADG12	708 A 37 ---- 905 M 39	4135 9840 ----	220 228 232	98 99 100	780÷930 880÷1080 930÷1130
Alloyed casehardening steels	18NiCrMo7 20NiCrMo2	---- 21NiCrMo2	20NCD7 20NCD2	En 325 805 H 20	4320 4315	232 224	100 98	760÷1030 690÷980
Alloyed for bearings	100Cr6	100Cr6	100C6	534 A 99	52100	207	95	690÷980
Tool steel	52NiCrMoKU C100KU X210Cr13KU 58SiMo8KU	56NiCrMoV7C100K C100W1 X210Cr12 ----	---- ---- Z200C12 Y60SC7	---- ---- BS1 BD2-BD3 ----	---- ---- S-1 D6-D3 S5	244 212 252 244	102 96 103 102	800÷1030 710÷980 820÷1060 800÷1030
Stainless steels	X12Cr13 X5CrNi1810 X8CrNi1910 X8CrNiMo1713	4001 4301 ---- 4401	---- Z5CN18.09 ---- Z6CDN17.12	---- 304 C 12 ---- 316 S 16	410 304 ---- 316	202 202 202 202	94 94 94 94	670÷885 590÷685 540÷685 490÷685
Copper alloys Special brass Bronze	Aluminium copper alloy G-Cual11Fe4Ni4 UNI 5275 Special manganese/silicon brass G-CuZn36Si1Pb1 UNI5038 Manganese bronze SAE43 - SAE430 Phosphor bronze G-CuSn12 UNI 7013/2a					220 140 120 100	98 77 69 56.5	620÷685 375÷440 320÷410 265÷314
Cast iron	Gray pig iron G25 Spheroidal graphite cast iron GS600 Malleable cast iron W40-05					212 232 222	96 100 98	245 600 420

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 mailnly 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.

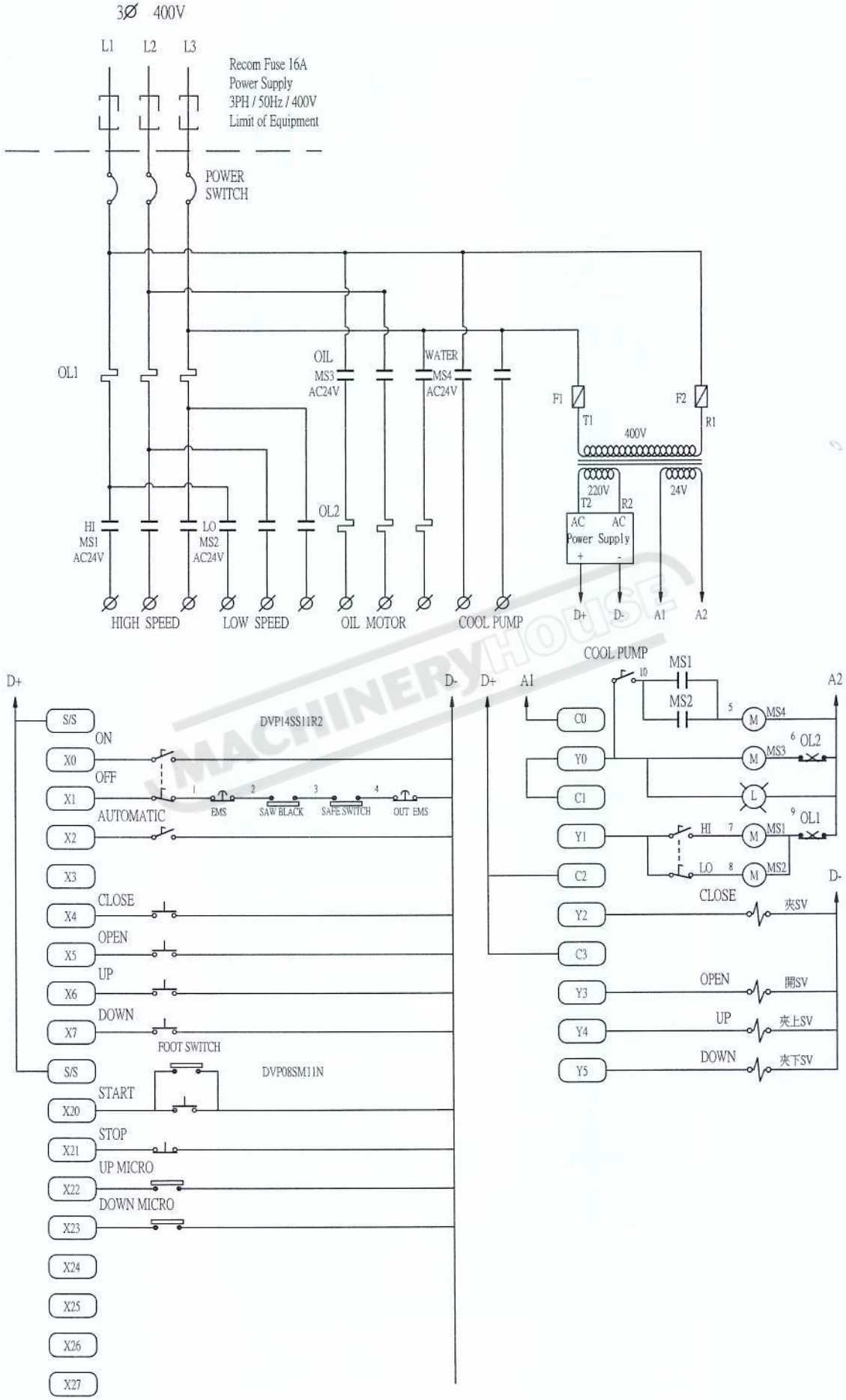
9.7.1 - RECOMMENDED CUTTING PARAMETERS

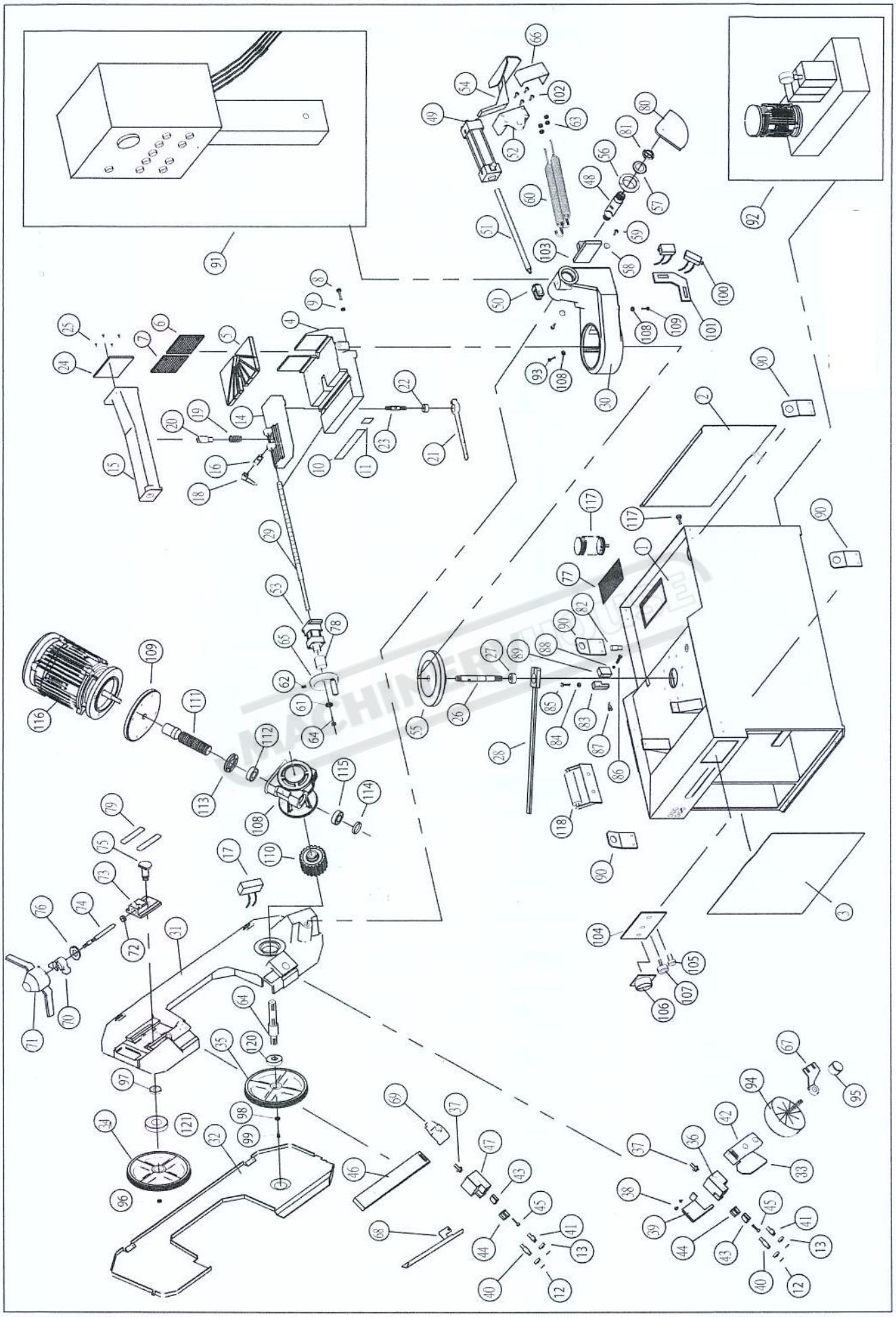
STEEL	CUTTING SPEED	LUBRICATION
CONSTRUCTION	60/80	EMULSIFIABLE OIL
CEMENTATION	40/50	EMULSIFIABLE OIL
CARBON STEEL	40/60	EMULSIFIABLE OIL
HARDENING AND TEMPERING	40/50	EMULSIFIABLE OIL
BEARINGS	40/60	EMULSIFIABLE OIL
SPRINGS	40/60	EMULSIFIABLE OIL
FOR TOOLS	30/40	EMULSIFIABLE OIL
FOR VALES	35/50	EMULSIFIABLE 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 parts list Including 24V electric power unit (optional)

Part No	Name	Dsecription	Producer	Mark
S01	MS1	CONTACTOR LC1D096B7 24V	TELENIECANIQUE	CE
S02	MS2	CONTACTOR LC1D096B7 24V	TELENIECANIQUE	CE
S03	MS3	CONTACTOR LC1D096B7 24V	TELENIECANIQUE	CE
S04	MS4	RELAY LB2-24AS 24V 10A	GEORGE	CE
S05	POWER SUPPLY	POWER SUPPLY S-50-24	MW	CE
S06	F1	FUSE 6A	GIRO	CE
S07	F2	FUSE 6A	GIRO	CE
S08	DVP14SS11R2	PLC	DELTA	CE
S09	DVP08SM11N	PLC	DELTA	CE
S10	HIGH/LOW SWITCH	XB7-ED33	TELENIECANIQUE	CE
S11	MANUAL/AUTOMATIC SWITCH	XB7-ED21	TELENIECANIQUE	CE
S12	ON/OFF SWITCH	XB7-ED21	TELENIECANIQUE	CE
S13	CLOSE SWITCH BUTTON	XB7-EA51	TELENIECANIQUE	CE
S14	OPEN SWITCH BUTTON	XB7-EA31	TELENIECANIQUE	CE
S15	UP SWITCH BUTTON	XB7-EA31	TELENIECANIQUE	CE
S16	DOWN SWITCH BUTTON	XB7-EA51	TELENIECANIQUE	CE
S17	START SWITCH BUTTON	XB7-EA31	TELENIECANIQUE	CE
S18	OFF SWITCH BUTTON	XB7-EA42	TELENIECANIQUE	CE
S19	TR	TRANSFORMER 400/220V/26V	GEORGE	CE
S20	UP MICRO	FCT01 500V 10A	HIGHLY	CE
S21	DOW MICRO	FCT01 500V 10A	HIGHLY	CE
S22	EMERGENCY STOP	EMERGENCY STOP	CIRO	CE
S23	HIGH/LOW MOTOR	3HP 400V	CYM	CE
S24	OLD MOTOR	2HP 400V		CE
S25	COOL PUMP	80W 400V	CYM	CE
S26	CAM SWITCH	RWP-25A	CIRO	CE

Electrical Circuit Diagram EB-351DSA



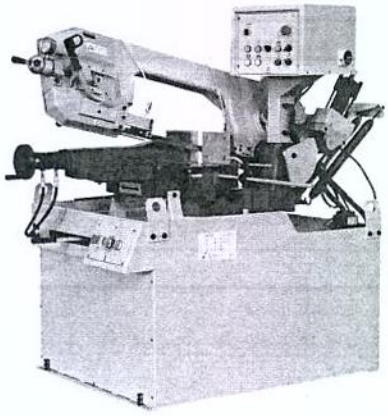


EB-351DSA 零件表(PARTS LIST)

編號	名稱	數量	編號	名稱	數量	編號	名稱	數量
1	BASE/底座	1	43	BLADE-GUIDE UNIT L /鋸鋼-L	2	85	47MM M10 SCREW /47長M10螺絲	1
2	REAR CASING/底座後蓋板	1	44	BLADE-GUIDE UNIT-SQUARE /鋸鋼-方	2	86	44MM M6 SCREW / M6長44MM螺絲	1
3	FRONT CASING/底座前蓋板	1	45	33MM M5 SCREW /33長M5螺絲	2	87	GLIDE SCREW /滑動螺絲	1
4	VISE BASE /虎鉗底座	1	46	BIG BRACKET /培林座大支架	1	88	6MM M6 NUTM6寬6MM螺帽	1
5	VISE PIECE /虎鉗底片	1	47	BLADE GUIDE PLATE L /左培林座	1	89	BLOCK SEAT /檔塊座	1
6	VICE JAW R. /虎鉗座右檔片	1	48	PIVOT L. /左支架軸	1	90	HANGER /吊架	1
7	VICE JAW L. /虎鉗座左檔片	1	49	BIG CYLINDER SEAT /大油壓缸座	1	91	OPERATION BOX操作箱	1
8	58MM SCREW/ 58長外六角螺絲	1	50	CYLINDER NUT /油壓缸軸頭	1	92	CYLINDER SYSTEM /油壓系統	1
9	M10 NUT/ 螺帽M10	1	51	CYLINDER AXIS /油壓缸軸	1	93	SCREW /螺絲	1
10	SCALE/指示標	1	52	CYLINDER BRACKET /油壓缸支架	1	94	BRUSH /鋼刷	1
11	TARGET/指標	1	53	VISE CYLINDER /虎鉗座油壓缸	1	95	FIXED CIRCLE /固定圈	1
12	C-RING/ C型扣	2	54	REAR CYLINDER HOLDER /後油壓缸支撐架	1	96	NUT /螺帽	1
13	BEARING/培林	4	55	ROUND SEAT /圓座	1	97	BEARING /培林	1
14	COUNTERVICE /虎鉗下座	1	56	BIAS CASE /偏心套	1	98	WASHER /華司	1
15	VISE / 虎鉗上座	1	57	RING NILONS /培林蓋	1	99	SCREW /螺絲	1
16	VISE HANDLE BOLT /虎鉗上座把手軸	1	58	GASKET /墊片	2	100	MICRO SWITCH /微動開關	2
17	MICRO SWITCH /微動開關	1	59	45MM M6 SCREW /45長M6螺絲	2	101	L PLATE /L板	1
18	HANDLE /任意把手	1	60	SPRING /彈簧	2	102	SCREW /螺絲	4
19	VISE SPRING /虎鉗內彈簧	1	61	WASHER /華司	1	103	FIXED SEAT /固定座	1
20	VISE NUT /牛角牙座	1	62	SCREW /內六角螺絲	1	104	SMALL NAME PLATE /小面板	1
21	VISE LEVER /虎鉗座手柄	1	63	NUT /螺帽	4	105	FLUE /節流閥	1
22	VISE NUT /虎鉗座螺帽	1	64	SCREW /螺絲	1	106	MAIN SWITCH /總開關	1
23	COUNTERVISE SHAFT /虎鉗下座連接桿	1	65	REVOLVING HANDLE /旋轉輪把手	1	107	EMERGENCY STOP /緊急停止	1
24	VISE JAW /小虎鉗檔片	1	66	HOLDER COVER /支撐架護蓋	1	108	GEAR BOX /齒輪箱	1
25	20MM FLAT SCREW /平頭螺絲20MM長	4	67	BRUSH BRACKET /鋼刷輪支架	1	109	ROUND PLATE /圓盤	4
26	PIN /旋轉座主軸	1	68	296MM BLADE GUARD /296防保護片		110	TRANSMISSION GEAR /渦輪	2
27	PIN NUT /旋轉座主軸螺帽	1	69	FIXED BLADEGUIDE PLATE /固定培林座	1	111	WORM GEAR /渦桿	1
28	HANDLE /固定把手	1	70	FIXED HANDLE SEAT /把手固定座	1	112	BEARING /培林	1
29	VISE SCREW /虎鉗座角牙桿	1	71	HANDLE /把手	1	113	OIL SEAL /油封	1
30	REVOLVING ARM /旋轉座	1	72	NUT /螺帽	1	114	OIL SEAL /油封	1
31	BODY FRAME /鋸弓	1	73	BLOCK, BLADE TENSION /滑塊	1	115	BEARING /培林	1
32	BLADE COVER /護蓋	1	74	THREADED SHAFT /滑塊張把手螺桿	1	116	MOTOR /馬達	1
33	BLADE GUARD /保護片	1	75	BLADE SHEET SHAFT /滑塊中心桿	1	117	COOLANT PUMP /冷卻幫浦	1
34	REAR FLYWHEEL /鋸輪後	1	76	WASHER /華司	1	118	TRANSPORT SHELF /送料架	1
35	FRONT FLYWHWWL /鋸輪前	1	77	FILTER /鐵網	1	119	WATER TANK SCREW / 水箱螺絲	1
36	BLADEGUIDE PLATE R /右培林座	1	78	BUSHING /銅套	1	120	BEARING /培林6206	1
37	PT PIPE / PT管頭	2	79	TRACKING PLATE /滑塊固定片	2	121	BEARING /培林32006	1
38	13MM M4 SCREW /13長M4螺絲	2	80	REVOLVING ARM COVER /旋轉座護蓋	1	122		
39	BLADE COVER 凵 / 凵型護蓋	1	81	NUT /防滑螺帽	1	123		
40	GUIDE PIVOT /培林軸長	2	82	PIN /插削	1	124		
41	GUIDE PIVOT /培林軸短	2	83	BLOCK /檔塊	1	125		
42	SMALL BRACKET /培林座小支架	1	84	10MM M10 NUT /M10寬10MM螺帽	1	126		

Electrical parts list

Part No	Name	Dsecription	Producer	Mark
T01	MS1	RELAY	RY	CE
T02	MS2	MS	SHIHLIN	CE
T03	MS3	MS	SHIHLIN	CE
T04	MS4	MS	SHIHLIN	CE
T05	OL1	OL	SHIHLIN	CE
T06	OL2	OL	SHIHLIN	CE
T07	M1	SAW MOTOR	GOROGE	CE
T08	M2	PUMP MOTOR	GOROGE	CE
T09	M3	OIL MOTOR	GOROGE	CE
T10	TR	TRANSFORMER	GOROGE	CE
T11	F1	FUSE	DEMEX	CE
T12	F2	FUSE	DEMEX	CE
T13	EMS1	EMERGENCY STOP	DEMEX	CE
T14	EMS2	EMERGENCY STOP	DEMEX	CE
T15	OFF	O SWITCH	TELEMECANIQUE	CE
T16	PCB	PCB CY-350	GOROGE	CE
T17	ON	I SWITCH	TELEMECANIQUE	CE
T18	LAMP	POWER LAMP	TELEMECANIQUE	CE
T19	POWER	CAM SWITCH	SALZER	CE
T20	SPEED	HI / LOW SWITCH	SALZER	CE
T21	COOL	PUMP	SALZER	CE
T22				CE



METAL CUTTING BAND SAW MACHINE

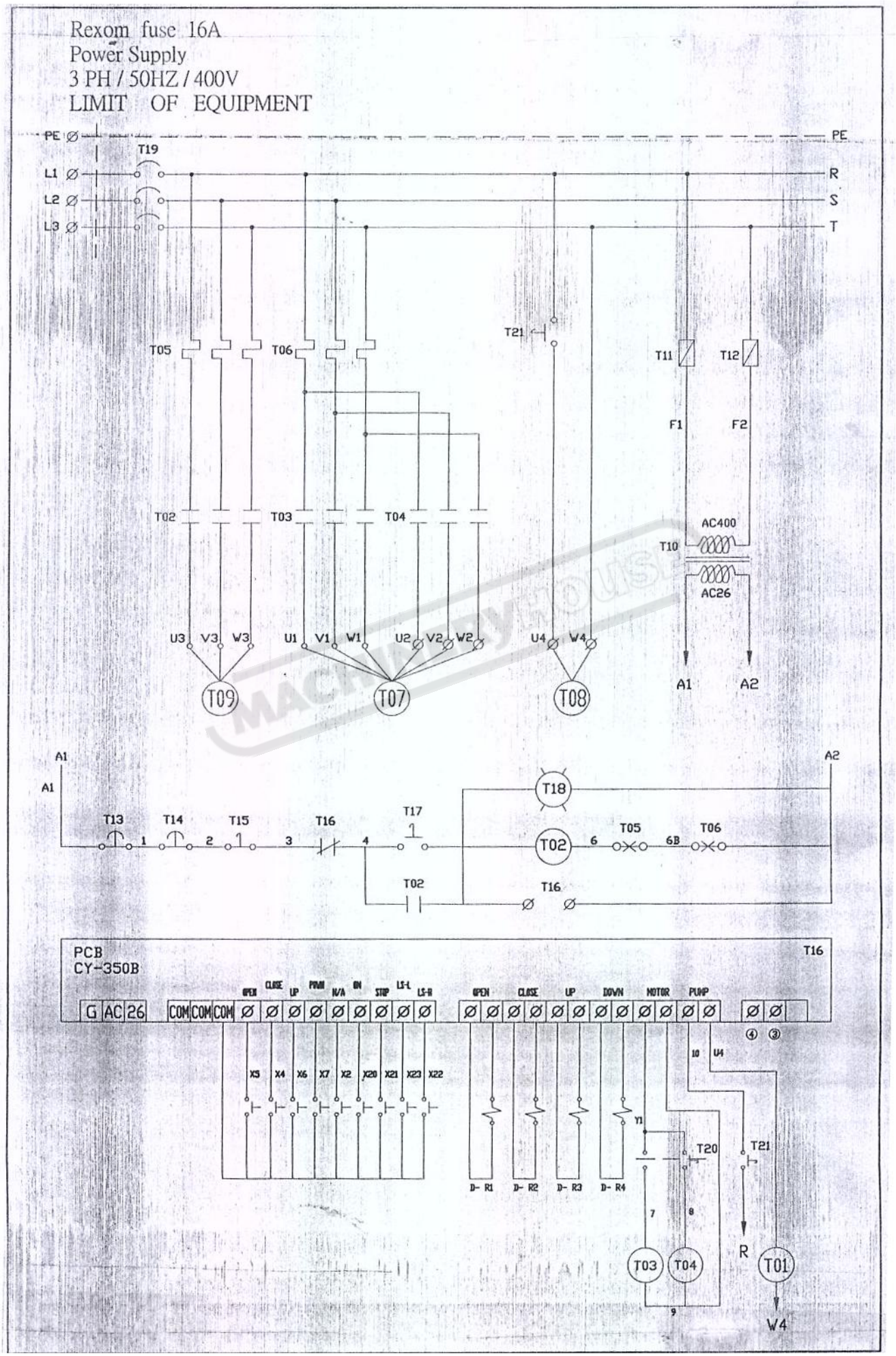
EB-351DSA

Instruction Manual

Standard Equipment

Bimetal saw blade
Cooling pump
Magnetic switch & CE
Stand

Electical Circuit Diagram EB-351DSA

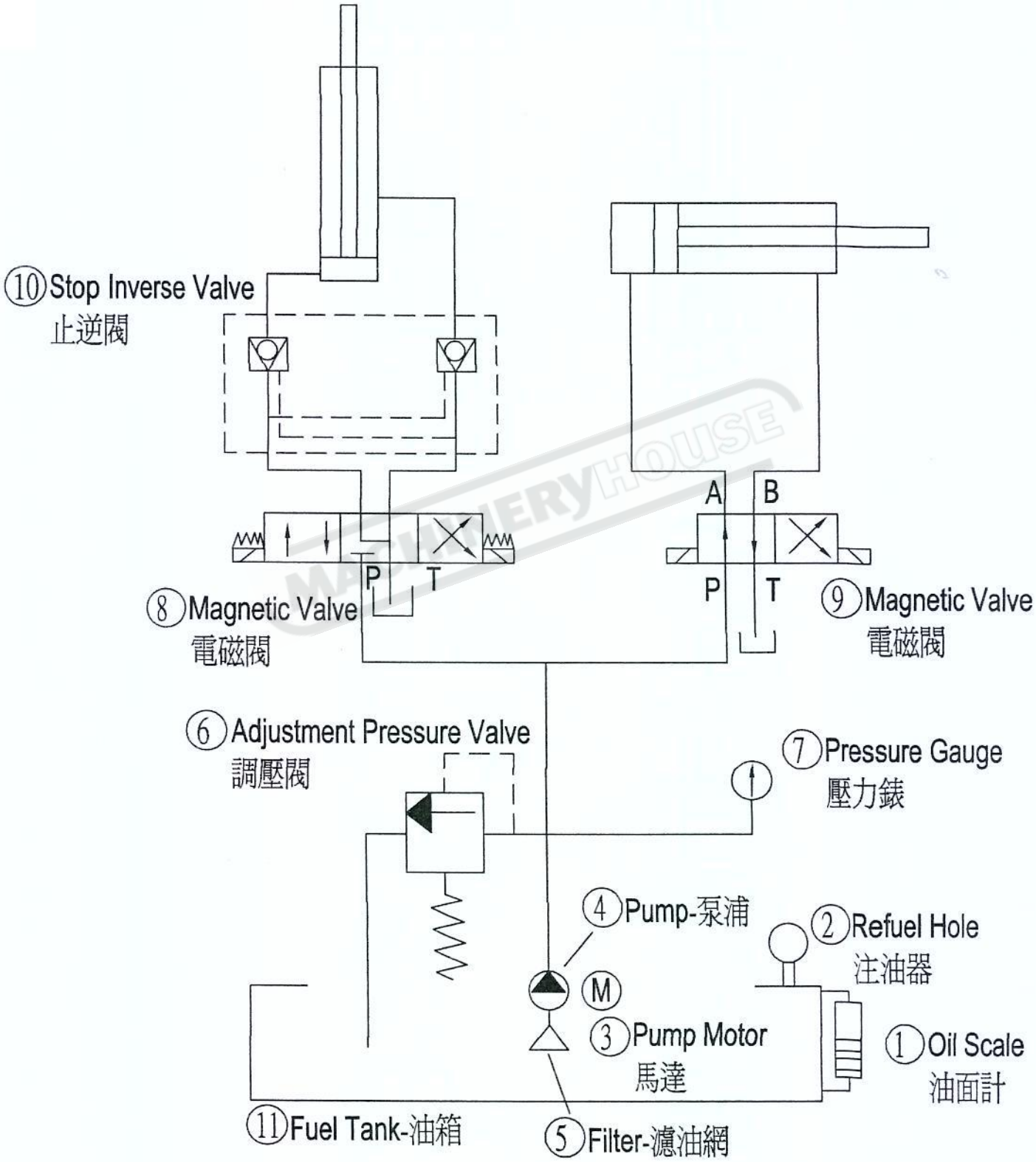


Electrical parts list

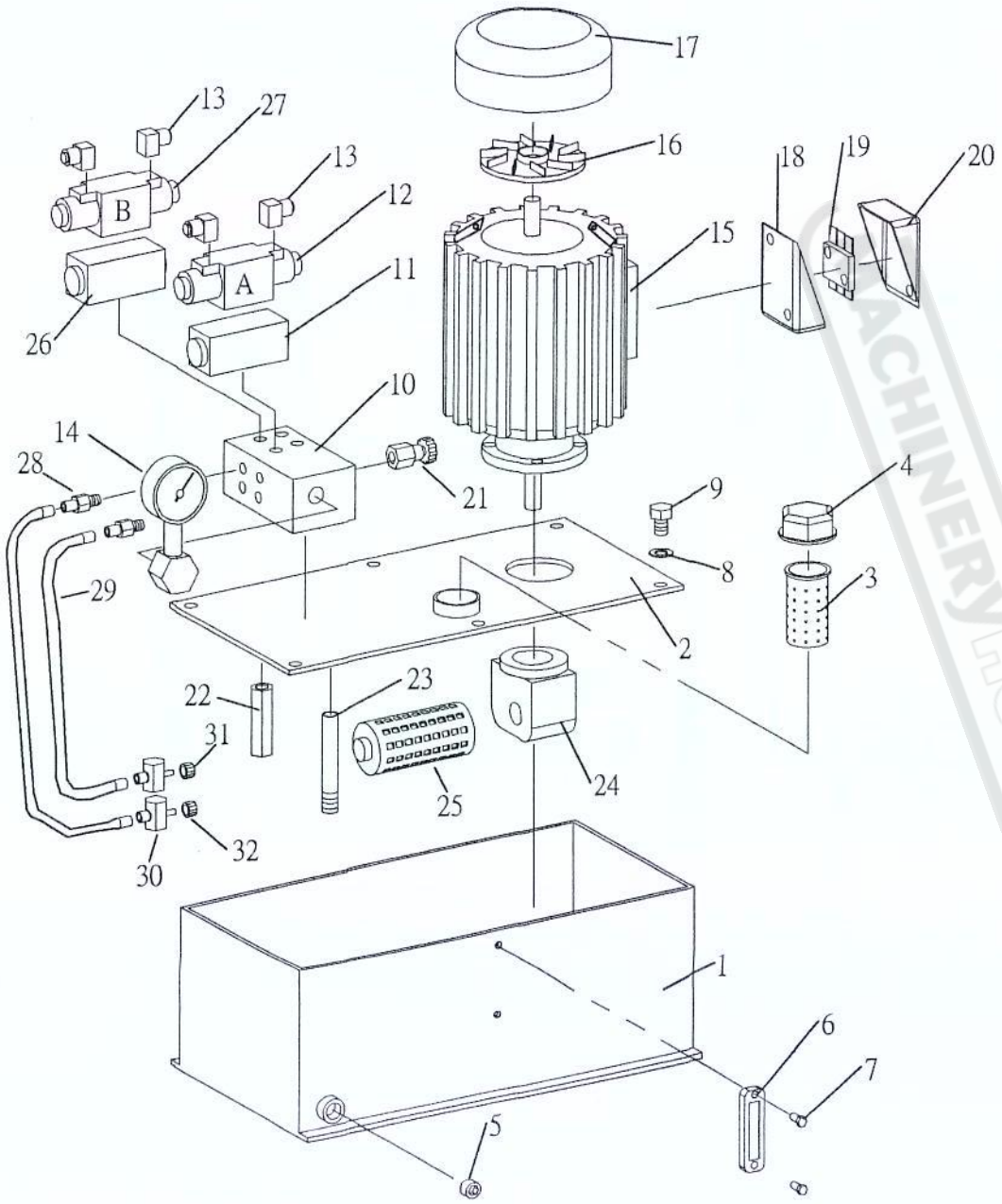
Including 24V electric power unit (optional)

Part No Mark	Name	Description	Producer
S01	MS1	CONTACTOR SP09+THP09 24V	SHIHLIN
S02	MS2	CONTACTOR SP09+THP09 24V	SHIHLIN
S03	ON	GREEN 24V AC/DC	TN2IS7
S04	F1	FUSE 4A	DEMEX
S05	F2	FUSE 4A	DEMEX
S06	HIGH / LOW	XB7-ED25	TELENIECANIQUE
S07	MANUAL / AUTO SWITCH	XB7-ED21	TELENIECANIQUE
S08	PUMP SWITCH	XB7-ED21	TELENIECANIQUE
S09	CLOSE / SWITCH BUTTON	XB7-EA51	TELENIECANIQUE
S10	OPEN / SWITCH BUTTON	XB7-ED31	TELENIECANIQUE
S11	UP / SWITCH BUTTON	XB7-ED31	TELENIECANIQUE
S12	DOWN / SWITCH BUTTON	XB7-ED51	TELENIECANIQUE
S13	START / SWITCH BUTTON	XB7-EW3361	TELENIECANIQUE
S14	OFF / SWITCH BUTTON	XB7-BW3461	TELENIECANIQUE
S15	TR	TRANSFORMER 400V /220V / 26V	GEORGE
S16	UP MICRO	AZD-8111 500V 10A	SHINOZAKI
S17	DOWN MICRO	AZD-8111 500V 10A	SHINOZAKI
S18	EMERGENCY STOP	ENERGENCY STOP	CHANGXGIN
S19	SAW MOTOR	3HP 400V	CYM
S20	OLD MOTOR	0.5HP 400V	CYM
S21	COOL PUMP	80W 400V	CYM
S22	CAM SWITCH	RWP-25A	CIRO
S23	PCB	CY-350B	CYM

Cylinder Diagram
油壓迴路圖

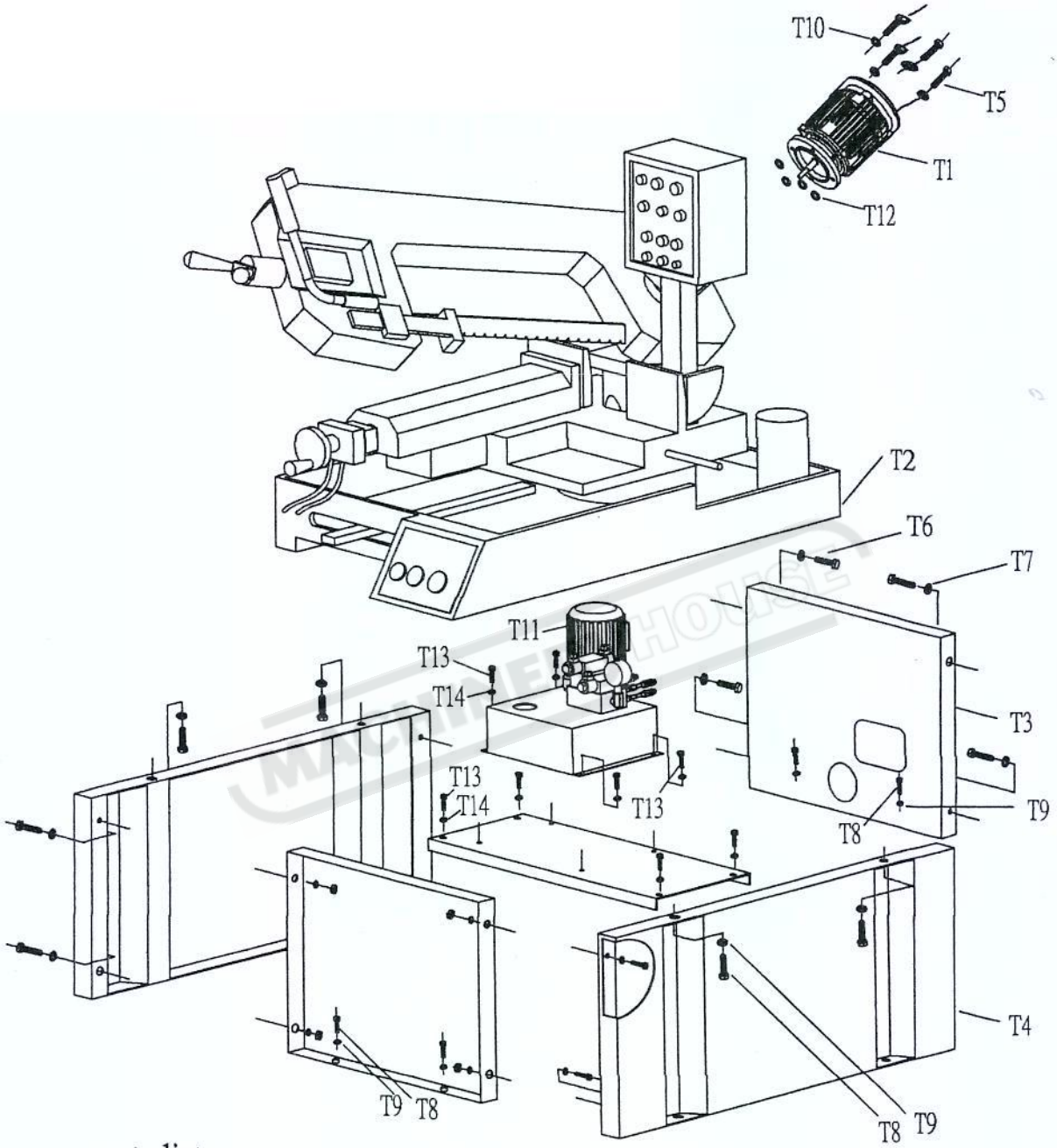


EB-351DSA Hydraulic Unit



項次編號 No:	PARTS NAME	零件檔案名稱	數量 Q'ty
1	HYDRAULIC BOX	油壓箱	1
2	UPPER COVER	上蓋	1
3	FILTER COVER	濾網	1
4	REFUEL	入油蓋	1
5	LEAKING OIL BOLT	漏油栓	1
6	OIL DISPLAY	油表	1
7	OIL DISPLAY SCREW	油表螺絲	2
8	GASKET	墊片	6
9	SCREW	螺絲	6
10	VALVE BLOCK	調油閥	1
11	NEGATIVE VALVE	逆止閥	1
12	LOW-PRESSURE CONTROL VALVE A	低壓控制閥	1
13	CONNECT PLUG	接線頭	4
14	OIL PRESSURE GAUGE	油壓表	1
15	MOTOR	馬達	1
16	FAN	風葉	1
17	FAN COVER	風葉蓋	1
18	LOWER COVER	馬達下蓋	1
19	CONNECT LINE PLANK	接線板	1
20	MOTOR UPPER COVER	馬達上蓋	1
21	ADJUSTMENT BOLTS	調整栓	1
22	NEGATIVE VALVE	逆止閥	1
23	ARRANGE PIPELINE	排油管	1
24	HYDRAULIC PUMP	油壓幫浦	1
25	FILTER NET	過濾網	1
26	NEGATIVE VALVE	逆止閥	1
27	LOW-PRESSURE CONTROL VALVE B	低壓控制閥	1
28	CONNECTOR HEAD	接管頭	2
29	PIPELINE	油管	2
30	ADJUST OIL VALVE	調油閥	2
31	ADJUST CIRCLE BOLT A	微調圓栓頭 A	1
32	CIRCLE BOLT B (ON/OFF)	圓栓頭 B	1

Cabinet Stand for Metal Cutting EB-351DSA Band Saw



parts list

ref. no.	parts name	Q'ty
T1	motor	1
T2	band saw	1
T3	metal plate	2
T4	metal plate	2
T5	M10 hex.Bolt	4
T6	M8 hex.Bolt	8
T7	Washer	16
T8	M10 hex.Bolt	4
T9	Washer	4
T10	Washer	4
T11	Cylinder Pump	1
T12	M10 hex.nut	4
T13	M6 hex.Bolt	8
T14	Washer	8