PORTABLE BAND SAWING

INSTRUCTIONS FOR USE AND MAINTENANCE / SPARE PARTS

MODEL: 150

150-070226-R1

⚠ WARNING !

Some dust created by power sanding, sawing, grinding, drilling, and other construction activities contains chemicals known to the State of California to cause cancer, birth defects or other reprodrctive harm. Some examples of these chemical are:

- Lead from lead-based paints.
- Crystalline silica from bricks, cement and other masonry products.
- Arsenic and chromium from chemically-treated lumber.

Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: Work in a well ventilated area, and word with approved safety equipment, such as those dust masks that are specially designed to filter out microscopic particles.

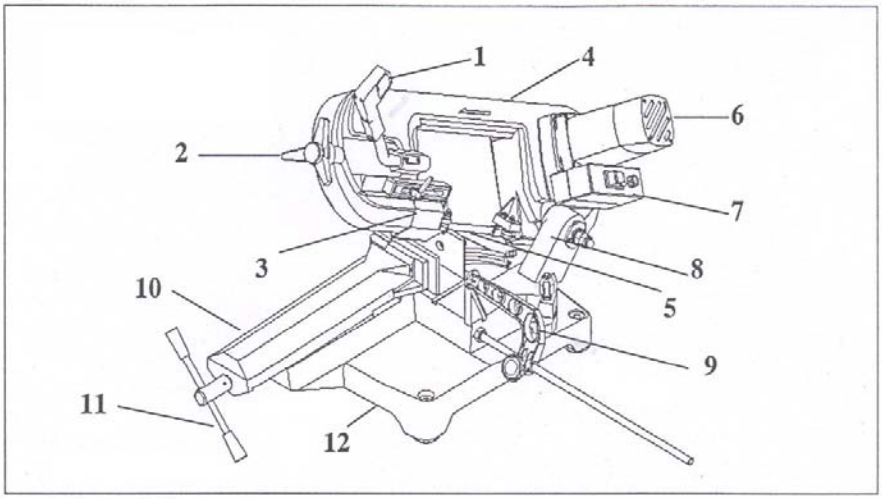
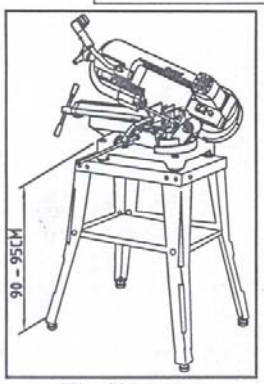


Fig./Abb.1



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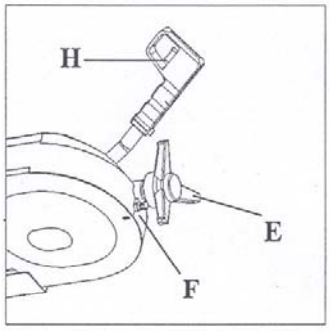

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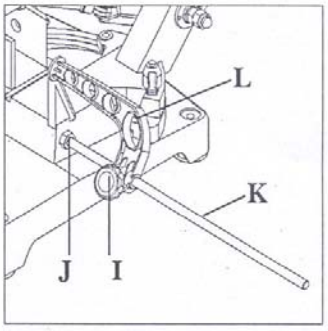

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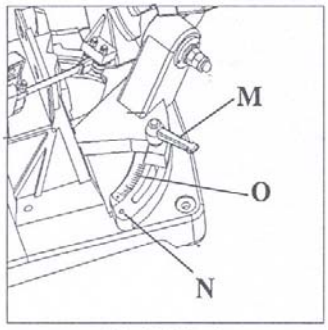

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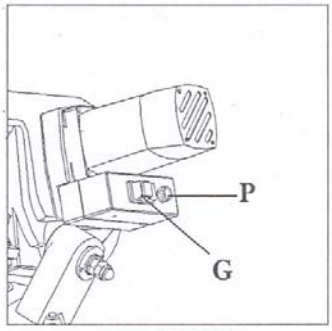

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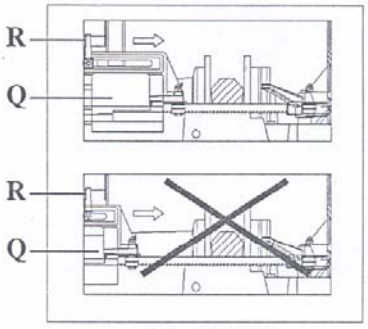

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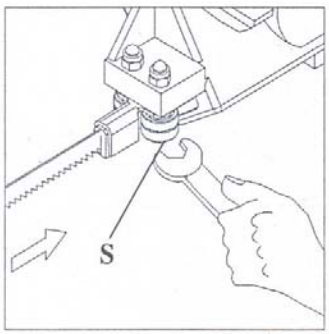

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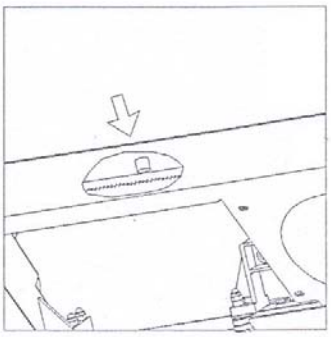

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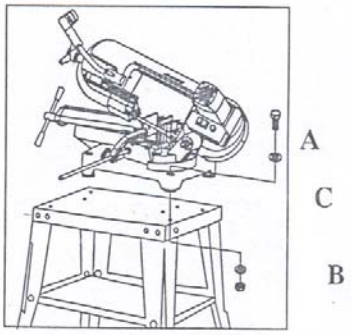


Fig./Abb.13

INDEX

CAUTION

Install saw blade and blade guard before use. Set proper blade tension to prevent any danger caused by damaged saw blade or work piece.

1.0 INTRODUCTION TO USE

Before starting work with your sawing machine, carefully read this instructions manual so that you are familiar with the machine and its uses and where it should not be used. Keep this manual in a safe place.
It is an integral part of the machine and should be used for reference in operating the machine correctly and in the proper safety conditions.
Use the machine only and exclusively for the uses specified below, as recommended in this manual.
The machine should not in any way be tampered with, or forced, or used for unsuitable purposes.

1.1 SYMBOLS PLACED IN CORRESPONDANCE WITH USAGE POINTS

Never underestimate the warnings " ATTENTION – CAUTION " given in this manual.
In order to draw the user's attention and to preserve safety, hazardous operation are preceded by symbols and notes that point out the danger and explain how to behave to avoid any risk.
These symbols and notes are divided in three categories, identified by the following words:

Attention: dangerous-behaviours that could cause serious injuries.
CAUTION: behaviours that could cause slight injuries or damages to things.
WARNING: Disconnect machine from power source before making repairs .
NOTE: the notes preceded by this symbols are technical and are aimed at making operations easier.

1.2 SAFETY AND RULES

The machine was designed and built according to the Community Directives in force: EEC 98/37 –EEC 91/368 – EEC 93/68 – EEC 73/23 – EEC 89/336.
The enclosed CE declaration of conformity, togheter with the CE mark on product, essentially comprise and are an integral part of the machine : both guarantee product conformity with the aforesaid safety Directives.

1.3 RECOMMENDED AND NOT RECOMMENDED USAGE

This belt sawing machine was designed and constructed according to the most advanced technologies and may be used for all cutting requirements for metals commonly used in industry and artisanship.

It can cut:

.COMMON STEELS (FE 37…)
.SPECLAL STEELS (C 40, 18NiCrMo5…)
.ALUMINIUM AND ITS ALLOYS
.BRASS
.BRONZE
.STEEL TUBING (FE 35, FE 52…)
.PROFILED SECTIONS IN SHEET METAL AND ALUMINIUM

It is not suitable for cutting:

-WOOD AND SIMILAR MATERALS
-BONE AND SIMILAR MATERIALS

ATTENTION:The band saw has been developed and manufactured to cut in dry condition; the use of any cooler by lubricating oil makes the machine unusable.

Consult the relative sections for cutting capacities, the speeds to use and the type of tools for use according to the material to be cut and its section.(See list of contents).

1.4 STANDARD SAFEY PROCEDURS

-Do not use the machine in very damp places or in the presence of inflammable liquids or gases.
-Do not use it in the open air when general weather and environmental conditions are unfavourable (eg. Explosive atmospheres, during a storm or rain).
-Wear suitable clothes, without wide sleeves or articles such as scarves, chains and bracelets which could get caught in the moving parts.
-Always use personal protection devices: protective goggles as recommended by safety standards, gloves of the right size, headphones or earplugs, and hairnets if necessary.
-Use the tools recommended in this manual if you want to achieve the best performance from your sawing machine.
-Any power cable extensions must be type approved and comply with safety standards.
-Avoid using the machine if your psycho-physical condition are precarious or upset.

1.5 SAFETY PROCEDURS FOR FURTHER RISK

-Always keep processing residues away from the cutting area.
-Always use the clamp. The parts to be cut must always be held firmly in the clamp.
-Avoid starting off the machine by accident :do not keep the button in the handgrip pressed when you plug into the mains and check that the main switch is in position O (zero).
-Always keep hands away from the working areas while the machine is moving: before loading or unlading the part, release the run button on the hand grip.
-Do not force the machine unnecessarily : excessive cutting pressure could cause rapid wear to the blade and negatively influence the performance of the machine in terms of finishes and cutting precision.

1.6 NOISE CONDITIONS

In normal conditions of use as described in this manual, this belt sawing machine determines an equivalent level of acoustic pressure:
Leq= 79.0 dB(A) when operating unloaded;
Leq= 81.2 dB(A) during processing (eg. cutting of a steel tube D.130mm thickness 10mm), at cutting speed of 70m/min., with a weighted operating cycle of 2 minute.
Measurement were obtained in compliance with UNI 7712, ISO 3740,ISO 3746 and CEE 89/392 regulation.
NOTE : Personal hearing protection should be used, such as headphones or earplugs.

1.7 INFORMATION ABOUT THE ELECTROMAGNETIC COMPATIBILITY

The European regulations on safety and , in particular, the EEC Directive 89/336 contemplate that all the equipment be equipped with shielding devices against radio interferences both from and towards the outside.
This machine is equipped with filters both on the motor and on the power supply through which the machine is safe and in compliance with above regulations.
Tests were carried out according to EN 55011, EN 55014, EN50082-1, IEC 1000-4-2, IEC 1000-4-4 regulations.

1.8 DESCRIPTION OF THE MACHINE (Fig.1)

The belt sawing machine consists of two basic parts: the machine body (4) complete with motor and drive (6) which is integrated into lower part, consisting of the clamp (10) and the base (12), by means of the swivel support (8).
Here is a list of the main parts with the number indicating it in the drawing.

Legend Fig. 1
1 - Command grip
2 - Blade tension handwheel
3 - Sliding blade guide
4 - Machine body
5 - Blade
6 - Motor
7 - Control box
8 - Swivel support
9 - Bar stop
10 - Clamp (vice)
11 - Clamp drive
12 - Base

WEIGHT = 27KG
SIZE = cm 102 * 70 * H90 in maximum overall dimensions.
PACKAGING SIZE =cm L100 * W39 * H57

2.0 INSTALLAZIONE

2.1 REMOVING THE PACKING

Remove the wooden frame which protects the machine during transit by taking out the plastic tacks fixing it to the wooden base on which it rests.
Try not to damage the frame as you may have to move the machine long distances or store it for long periods.

2.2 HANDLING

As the machine is considerably heavy (35 kg net), it needs at least 2 people to lift it , positioned on either side.
The machine must be lifted and transported by the handle 13 fixed on the base plate.

2.3 TRANSPORT

Before moving the machine from one place to another by lifting it , apply the two handles 13 attached to the base.
Take the handles and fix them with the screws and then nuts on both sides of the base of machine.
It is necessary to low the saw body till the lower position and fix it to the base ; then you can proceed with the transport by lifting the machine by two person moving it at the handle.
Should the machine be fixed on a base plate (column) unlock the screws first.
For transport the machine , it is better to place it in the box it was when purchased.
Ensure it is placed in the correct position indicated by the arrows on the packaging.
Pay careful attention to the ideogram printed on the box as they provide all necessary information for palletization and stacking of boxes.
Tying the load down with ropes or safety belts is raccomended during transportation to prevent the load from sliding or falling.

2.4 POSITION/WORK STATION (Fig.3)

Place the machine on a sufficiently flat workbench (or on the floor for those sawing machines fitted with base plate) so that the machine has the better possible stability.
In respect of ergonomic criteria during cutting operations, the workbench must be positioned at such a height that the clamp level is between 90 and 95cm form the ground (see fig. 3)
The height of the base plate (where included) takes these criteria into account.
Now cut the cord which holds the machine body in a lowered position and remove the cardboard plug which protects the machine during transport.
ATTENTION: Make sure that the machine is placed in a working area with suitable environmental conditions and lighting. The general conditions of the working environment are of fundamental importance for accident prevention.

2.5 ELECTRICAL CONNECTIONS

Check that the mains to which the machine is connected is earthed in accordance with current safety regulations and that the power point is in good condition.
Remember that there should be a magnetothermic protective device fitted upstream of the mains to protect all the conductors from short circuits and overloads.
This protective device should be selected according to the electrical features of the machine listed below:

Nominal voltage..... 1~,115 / 230Volt
Nominal frequency 50/60Hertz
Max programmed absorbed value..... 5 Ampere
Nominal input power..... 1800/2000 Watt
Power factor 0.96
Nominal speed ..... 9000-18.500 rpm
Insulation..... Class B
Type of service..... intermittent S4-60 %

The motor of your sawing machine is equipped with a protective heat circuit breaker which interrupts the power supply when the temperature of the coils rises too high.
When the power supply is interrupted, wait for normal reset.
In case of power failure in mains, while you wait for power to be restored there is no danger hazard may arise: in face, the electronic governor is also equipped with a reset function which prevents the machine from restarting automatically.

3.0 ADJUSTING (Fig. 4-5-6-7-8)

3.1 TENSION OF THE BLADE (Fig.4)

Rotate the handwheel E clockwise until the indicator F on the machine body is aligned with the position “MAX: on the plate.
ATTENTION: Tensioning the blade over the MAX reference notch on the plate may cause the blade come out and damage to the machine; please follow this instruction carefully.

3.2 BAR STOP (Fig.5)

Use the bar stop supplied if you have to do several cuts on pieces of the same length.
In this way you do not have to repeat the same measurement each time.
ATTENTION: Before adjust the bar stop , be sure the main switch G is in O position.
Screw rod **K** into the hole of the base and fasten it with nut **J**. Slacken the handwheel **I** and place the stop **L** at the correct distance from the blade. Tighten handwheel **I** again.

3.3 Cutting angle (Fig.6)

To perform a cut at 45, slacken the two knobs **M** and rotate the body to the left until it rests on stop **N**, whose position was calibrated during the final inspection.
For all the other intermediate angles, match the indicator of the swivel support with the respective position on the plate **O**.

3.4 CUTTING SPEED (Fig.7)
Your sawing machine is equipped with **CESC** (Constant Electronic Speed Control), which allows gradual and continuous variation of the cutting speed , adapting it to the type and dimension of the material to be cut (see cutting table).
To select the most suitable speed, use the speed control knob **P** to increase or decrease the speed as you require.

3.5 SLIDING BLADE GUIDE (Fig.8)
The sliding blade guide **Q** with integrated protection fitted on your sawing machine is used to perform the cut while guiding the necessary part of the blade and fully protecting the part not used in the cutting process.
Slacken the knobs **R** and slide the blade guide **Q** so as to move it closer to or further from the part to be cut, as shown in the figure.
ATTENTION : If this adjustment is not done, the part of the blade not used in the cutting process will be exposed and this will create an extra risk of contact, besides altering the quality of the cut.

3.6 BEARINGS BLADE GUIDE (Fig.9)
The blade-auide on the outside of the sawing machine are eccentric and adjustable so as to simplify blade replacement and to keep it guided as its best.
They must always touch the blade slightly, so that they rotate when the blade passes, but must not be completely locked.
In order to approach or remove the eccentric bladeguides, gently turn the head of the **S** screw using a 10 mm. Wrench.

4.0 USE

4.1 RUNING IN THE BLADE
To obtain the best performance, the bi-metal blades fitted on your sawing machine must be run in for a short period. For this reason the first two or three cuts should be done where possible on a solid piece D.40-50 mm, using a very slight pressure on the blade, and gradually increasing pressure in subsequent cuts.
To gauge the correct pressure in normal operating conditions defined by this manual (see cutting table), consider for example that the first cut on solid steel (eg. C40) D.50 mm should be done in about 3 minutes.
After running-in , the same piece may easily be cut in about 50 seconds. If the running-in process is done correctly, the finish and precision of the cut will be of better quality and the blade will last longer.

4.2 WORKING
Turn the main switch **G** to position 1. In doing the switch comes on and the machine is ready for operation.
ATTENTION : before starting any cutting operation, check that all the protections are complete and in the correct position.
Once you have completed all the procedures and operations described so far, you may start the working processes.
To perform the cut, move to the front of the machine and grip the handgrip with your right hand.
ATTENTION : Keep your left hand away from the cutting area and on no account try to reach it when cutting is in process.
Using the index finger of your right hand , press the run button **H** (Fig.4) and gradually lower the machine body until it comes lightly into contact with the part to be cut.
Now begin to apply gradual pressure on the part and complete the cut.
ATTENTION : Always release button A between one cutting operation and another, while you are positioning the part. Do not try to block it or alter its functional characteristics in any way.
If the machine suddenly stops after numerous consecutive cuts, do not be alarmed.
The heat protector device of the motor has been activated, breaking the power supply when the temperature of the coils reaches the threshold limit defined by the insulation class, to prevent damage to the motor.
In this case, release the button H and wait for automatic reset which usually takes place after a few minutes.
Your sawing machine is equipped with an electronic speed governor which also includes a motor protection function obtained by means of an amperometric limiter. In this way it can not absorb an amount of current greater than the set one, expressed by the maximum value of absorption.
If the limiter trips while the machine is in operation, slightly decrease the cutting pressure in addition, this enables to safeguard the blade life and performance and to obtain always a sharp and clean cut.

4.3 replacing the blade (Fig.4-8-9-10)
When you perform this operation, always wear protective gloves to avoid contact with the teeth of the blade.
-check that the main switch **G** is at position O (Fig.4);
-rotate the handwheel **E** anticlockwise until the white indicator **F** is aligned with the position “MIN” on the plate;(Fig.4);
-slide the blade guide **Q** to the end run, slackening the knob **R**; (Fig.8);
-remove the protective casing by unscrewing the relative screws;

NOTE : Removing the safety casing activates the safety micro switch which automatically disables the motor.

-remove the blade from the guides and from the wheels;
-fit the new blade first between the guides, then onto the wheels, with the teeth facing as shown in Fig.9;
-tighten the blade again (point 3.1), and put the outside bearings blade guide in contact with the blade, turning in

clockwise direction the head of the screws **S**.

NOTE : Check that the back of the blade goes to rest on the inside the upper part of the machine body (Fig.10): if it does not, slacken the blade slightly and

move it back into the right position.

-Fit the protective casing.

At this point, activate button **H** with small impulses so that the blade positions itself correctly on the pulleys.

4.4 CUTTING CAPACITY (Fig.11)

The table below specifies the cutting capacity at 0 and 60 degrees which may be obtained in normal conditions of use described in this manual and without placing any other object between the jaws of the clamp.

The measure refered to maximum size may be clamp in the vice, and are available only for tubes, profiles and sections.

For solid material, we suggest to reduce the maximum cutting diameter of 30%.

SECTION	ANGLE	CUTTING CAPACITY
	0 degrees	150 mm
		140 mm
		150 x 140 mm
	45 degrees	90 mm
		90 mm
		100 x 90 mm
	60 degrees	65mm
		65mm
		65 x 70 mm

Fig.11

4.5 CORRECT POSITIONING OF THE PIECE IN THE CLAMP (Fig.12)

The pieces to be cut should be fitted directly between the jaws without adding other objects.

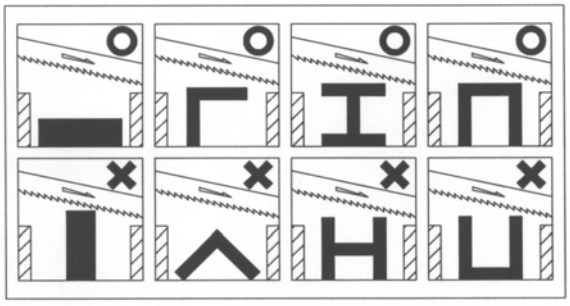
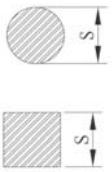
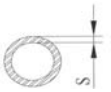
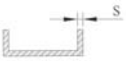


Fig.12

ATTENTION : Never hold the pieces to be cut in your hand.

When the pieces to be cut are profiled sections, flat pieces or special shapes, refer to the examples shown in the figures.If the thickness of the profiled section is to be very thin, an outline should be fitted which copies the profile inside the profiled section itself to stop it being crushed between the jaws.

4.6 CUTTING TABLE

SECTION	MATERIAL	S (m)	Z / 1"	Mt. / m.	Nr
	Common and special steel	<50 >50	6 / 10 4 / 6	50 40	3 2
	Aluminium and alloy Brass – Bronze	<50 >50	6 / 10 4 / 6	80 80	6 6
	Stainless steel	<50 >50	6 / 10 4 / 6	30 30	1 1
	Iron tubing	<5 >5 <20 >20	14 6 / 10 4 / 6	70 60 50	5 4 3
	Profiled and sections	<50 >50	14 6 / 10	70 60	5 4

5.0 ACCESSORIES

5.1 CHOISE OF BLADE

Your sawing machine is equipped with a bi-metal blade measuring 1735 * 13 * 0.9 mm with variable toothing 10t teeth per inch, for use in the majority of cuts possible with this machine.

For special requirements (see cutting table point 4.6), for example, for cutting large solid sections or profiled sections or corner pieces of small thickness, there are also blades avail-able with 4/6 toothing or 14 teeth per inch.

MATERIAL: M42 (steel for springs + steel HSS)
EXTENSION: mm 1735
HEIGHT: mm 13
THICKNESS: mm 0.9
TOOTHING: standard 6/10 optional 4/6 - 14

5.2 FITTING THE BASE PLATE (Fig.13) (where included)

To fasten the machine to the base plate, use the four screws **A**, four unts **B** and four washers **C** conteined in the carton box of the base plate.

Put the four screws **A** into the holes of the base of the machine, and fasten the whole with the four nuts **B**.

6.0 MAINTENANCE

6.1 REGULAR MAINTENANCE

The operations of ordinary maintenance, which may also be performed by non-specialist personnel, are all described in the previous sections and here below.

1.Before performing any maintenance operation, disconnect the machine electric plug from the outlet.

2.During maintenance operations, always wear personal protection (safety goggles and gloves).

3.Remove the processing residues from the cutting area and the blade guides whenever necessary.
You are advised to use a suction device or a brush.

ATTENTION : Do not use jets of compressed air.

4.If you do not intend to use the sawing machine for a long time, clean it and put it in a dry place if possible.
In these cases it is advisable to slacken off the blade so that it is not kept tight for no reason.

6.2 ASSISTENCE

Should it be necessary to call qualified personnel for operations of extraordinary maintenance, or in the case of repairs, under guarantee or at a later date, you should always contact an authorized service cente or the factory directly. If there is no service centre in your area.

6.3 DISPOSAL OF THE MACHINE

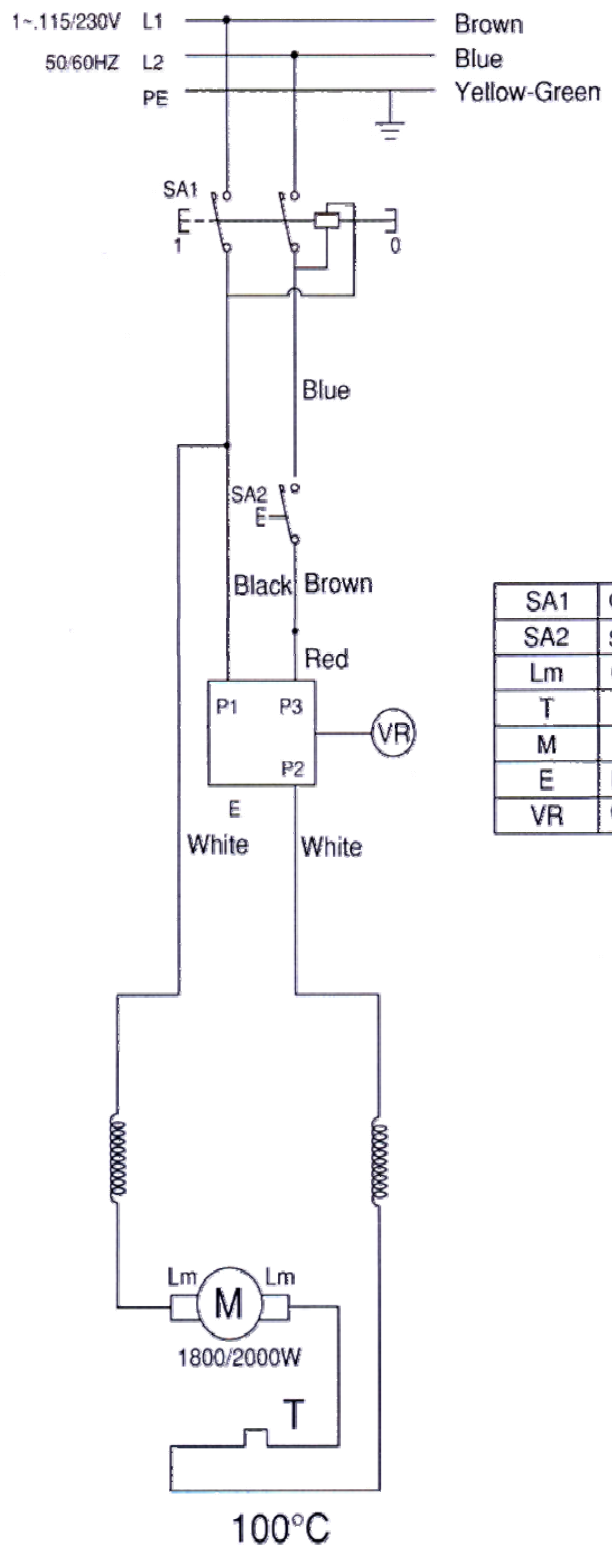
Once its operating activity is finished, the disposal of the machine must take place through a ormal collection and disposal Center for industrial waste.

7.0 TROUBLESHOOTING

PROBLEMS	CAUSES	SOLUTIONS SUGGESTED
The motor does not work.	Defective motor, power cable or plug.	Specialized personnel should check the machine ; do not attempt to repair the motor by yourself.
	Blown electric panel fuses.	Check fuse integrity and replace, if necessary.
	No voltage in the mains system.	Check for voltage in the mains system.
	The overload cutout has tripped.	Release the run button and wait a few minutes for the overload cutout to reset.
Overload cutout tripped.	Motor overheating.	Check that motor air intakes are clear.
	Motor overload caused by excessive cutting pressure.	Perform the cut on the piece at the correct pressure.
	Motor breakdown.	Specialized personnel should check the machine ; do not attempt to repair the machine by yourself.
Inaccurate cutting angle at 90° - 45° .	The setting of theN retainers (point 3.3) is inaccurate.	Set the retainers by unloosening the fastening screws and re-positioning them.
Inaccurate cut squaring.	Excessive cutting pressure (on pipes and section bars).	Decrease cutting pressure.
	Incorrect blade toothing in relation to the piece to cut.	Check the cutting (blade toothing, cutting speed) in the cuts table (point 4.6).
	Incorrect adjustment of the eccentric and sliding blade-guides.	Check blade-guide adjustment (points 3.5 and 3.6).
	Incorrect cutting speed in relation to the piece to cut.	Check piece positioning and clamping in the vice (point 4.5).
	The piece is wrongly positioned in the vice.	Check blade tension (point 3.1).
	Poor blade tension.	
Cut finish is coarse or corrugated.	The blade is worn or its toothing is not right for the thickness of the piece being cut.	Check the cutting parameters (blade toothing, cutting speed) in the cuts table (point 4.6).
	Excessive cutting pressure.	Decrease cutting pressure.

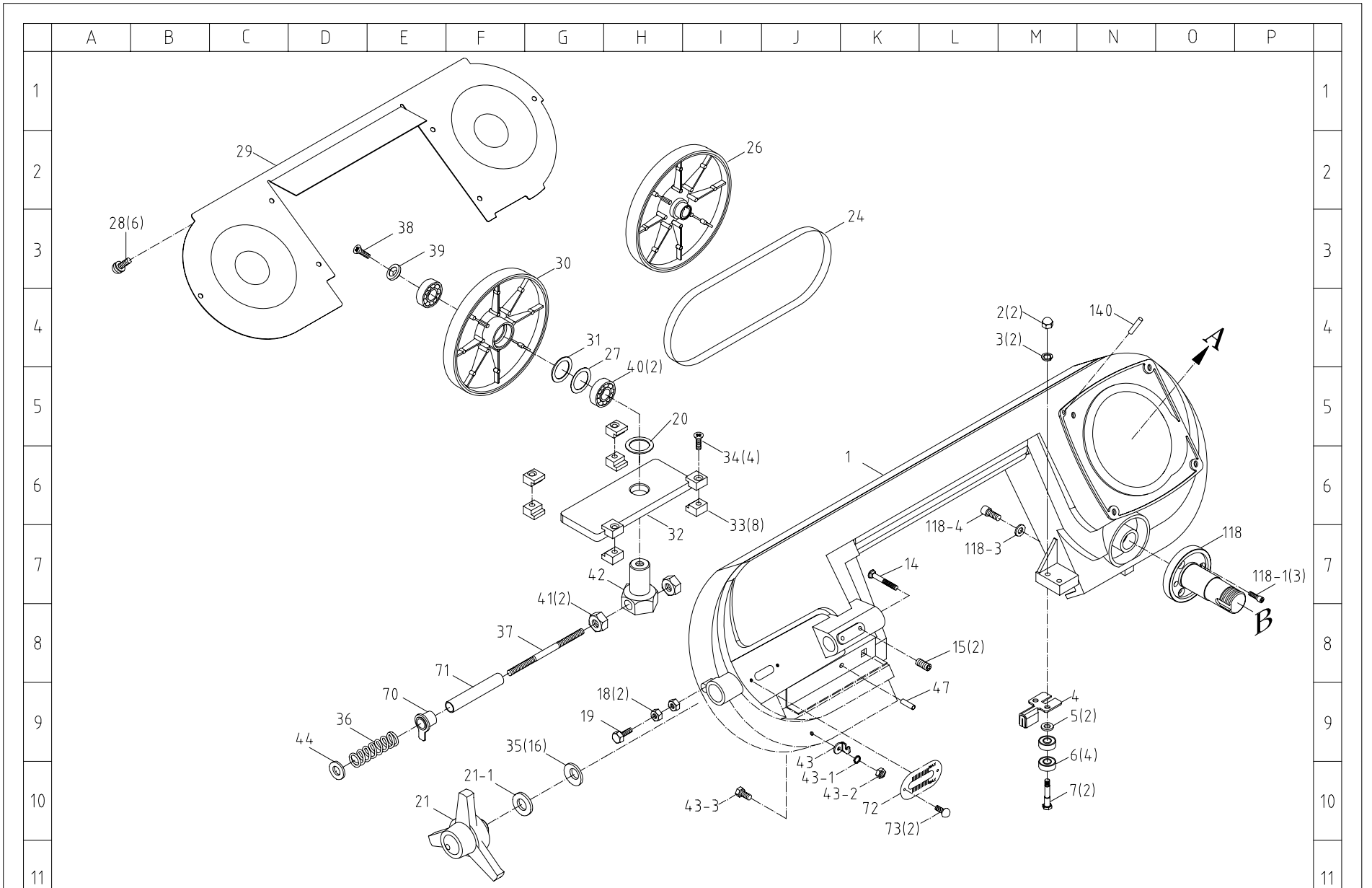
The blade tends to protrude from the guides.	Excessive blade tension. Incorrect eccentric blade-guide adjustment. Excessive wear of the pulley rubber linings. The blade slips on the pulleys, caused by oil or grease required for cutting operations.	Check blade tension (point 3.1). Check eccentric blade-guide adjustment (point 3.6). Specialized personnel should check the pulleys and replace them if necessary. Never use any type of lubricant or coolant for the cutting operations; specialized personnel should check and, if necessary, replace the pulleys.

Circuit Diagram (Variable Speeds)



SA1	ON/OFF Switch
SA2	Start Switch
Lm	Carbon
T	Temperature Switch
M	Motor,1800/2000W
E	Driver
VR	Change Speeds Button

150-070117-R0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6(4)
7(2)
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18(2)
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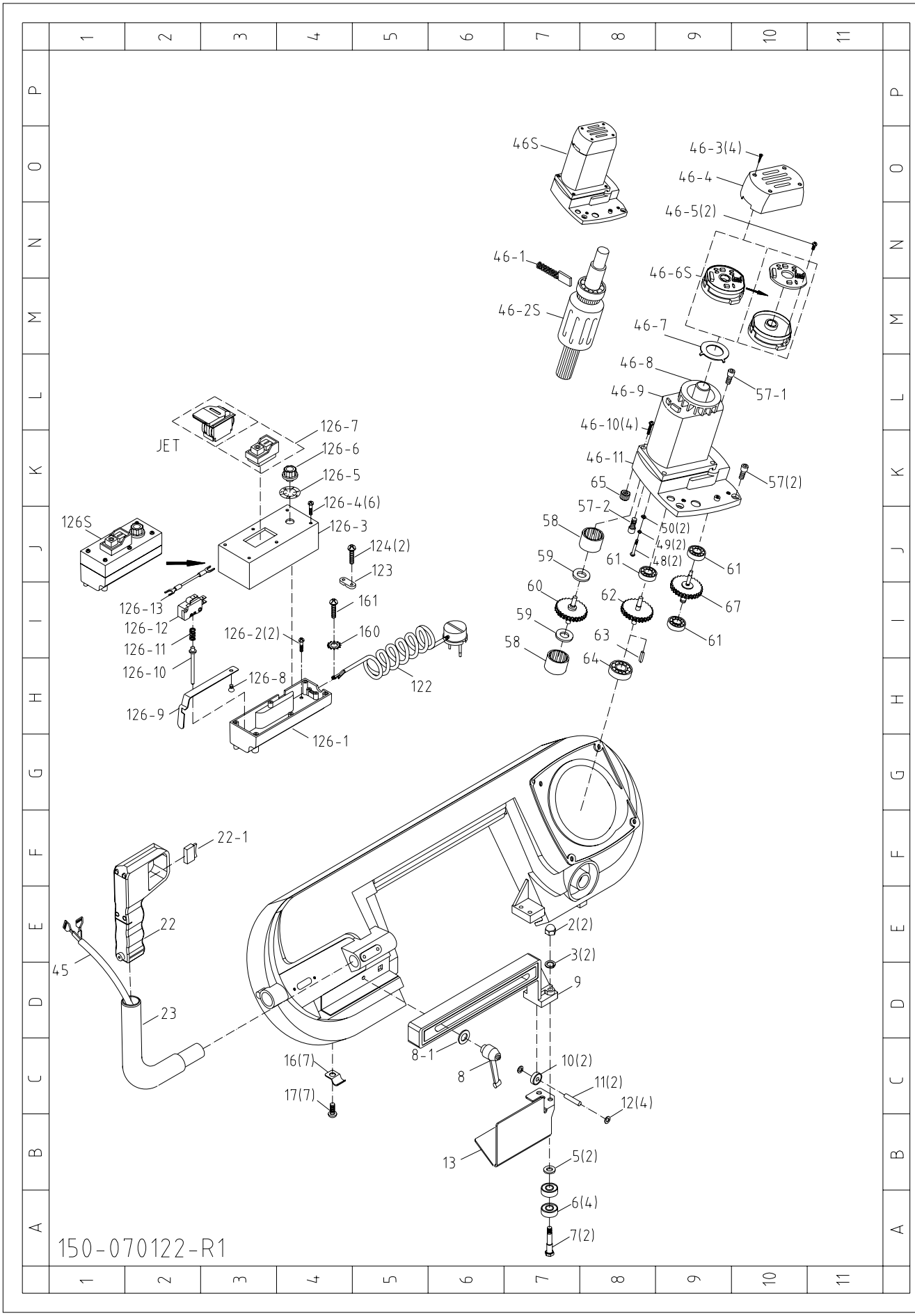
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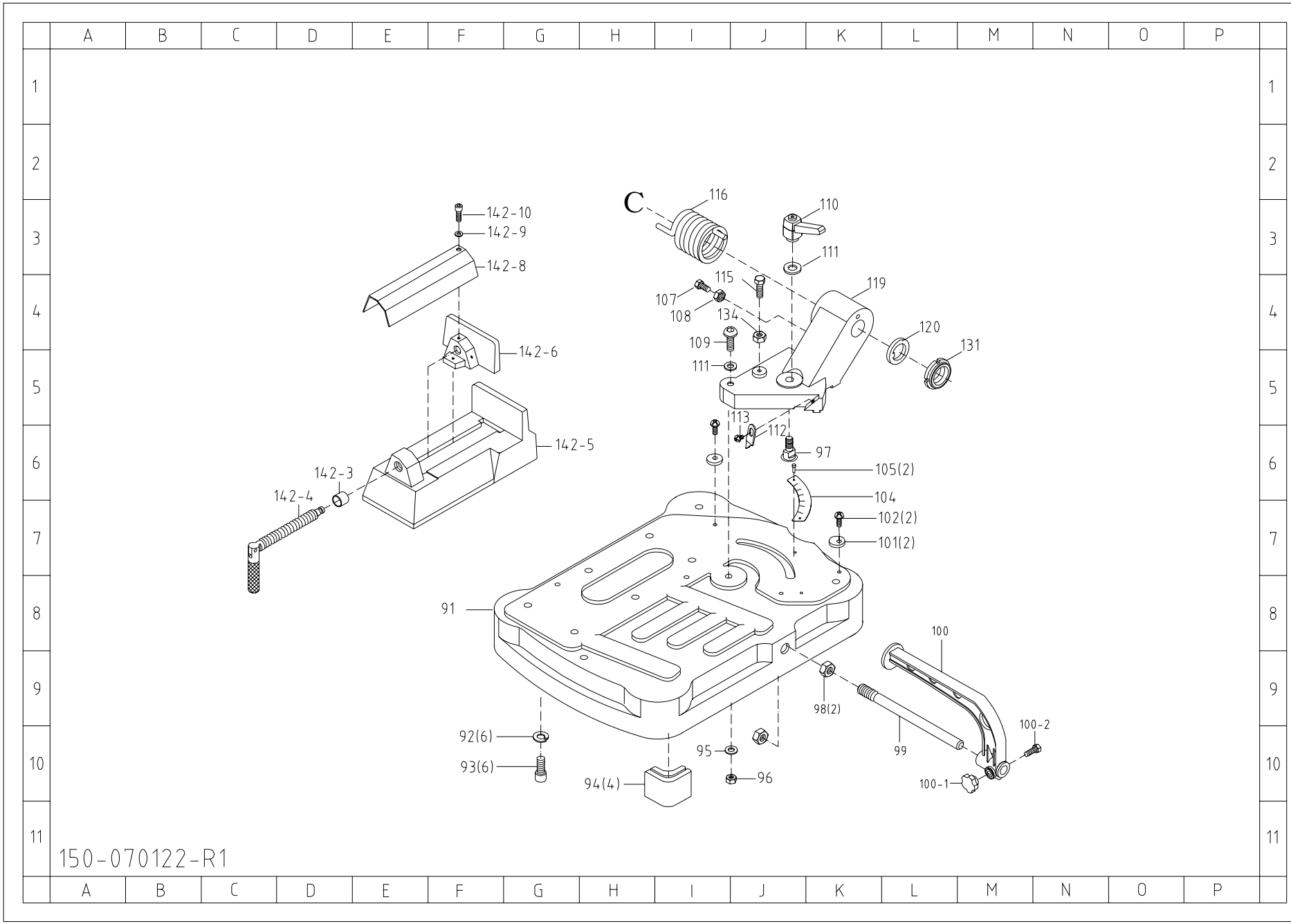
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PARTS LIST

MODEL NO. 150

CODE NO	PART NO	DESCRIPTION	SPECIFICATION	QTY	NOTE
1	112010	Body Frame	(13)	1	
2	HD901	Nut	M6	4	
3	HW104	Spring Washer	M6	4	
4	111018	Guide Bracket	(13)	1	
5	111009	Washer		4	
6	CA6072RS	Bearing	607-2RS(13)	8	
7	111016	Eccentric Shaft	(13)	4	
8	112036	Knob		1	
8-1	HW019	Washer	23*8.5-2	3	
9	112014	Adjustable Bracket (Front)		1	
10	CA6242RS	Bearing	624-2RS	2	
11	111096	Pin	§ 4x19.8L	2	
12	111031	Washer		4	
13	112032	Blade Cover(Front)		1	
14	HS912	Carriage Screw	M8X40L	1	
15	HS422	Hex. Socket Head Screw	M6X10L	2	
16	111066	Clamp		7	
17	HS610	Flat Cross Head Screw	M5x10L	7	
18	HN004	Hex. Nut	M6	2	
19	HS036	Hex. Head Screw	M6X30L	1	
20	112028	Washer		1	
21	112046	Knob		1	
21-1	HW018	Washer	26*10.5-3	1	
22	112050	Handle		1	
22-1	ET1244	Limit Switch		1	
23	112048A	Connecting Tube		1	
24	112088A	Blade	1735x13x0.9 10/14T	1	
26	112030	Drive Wheel		1	
27	112028	Washer		1	
28	HE506	Flat Cross Head Screw	M5X10L	6	
29	112007	Blade Back Cover		1	
30	112031A	Idler Wheel		1	
31	112027	Washer		1	
32	112039	Tension Bracket		1	
33	111028	Press Cake		8	
34	HS618	Flat Cross Head Screw	M5x25L	4	
35	112089	Spring	Ø23X12.2X1.5t	16	
36	112097	Spring		1	
37	112041	Bolt		1	
38	HD511	Flat Cross Head Screw	M8X20L	1	

PARTS LIST

MODEL NO. 150

CODE NO	PART NO	DESCRIPTION	SPECIFICATION	QTY	NOTE
39	112042	Plate		1	
40	CA6204ZZ	Bearing	6204ZZ	2	
41	HN006	Hex. Nut	M10	2	
42	112040	Shaft		1	
44	**HW006**	**Washer**	M10	1	
45	E130212F	Cable	110V/220V	1	
46S	M150	Motor	220V	1	
46S	M150-1	Motor	110V	1	
46-1	112084	Brush		2	
46-2S	112024S	Motor Rotor Assembly		1	
	112024	Motor Rotor Shaft		1	
	112024B	Motor Rotor		1	
46-3	HS818	Flat Cross Head Screw	Ø4X60L	4	
46-4	112086	Motor Cover		1	
46-5	HS816	Cross Round Head Screw	Ø4X15L	2	
46-6S	ET2522	Driver	TC-16(220V)	1	
46-6S	ET2523	Driver	TC-16(110V)	1	
	111090A	Bracket		1	
46-7	111088A	Separator		1	
46-8	111088	Fan		1	
46-9	112085	Motor Cover		1	
46-10	HS512	Cross Round Head Screw	M4x25L	4	
46-11	112012	Gear Box Cover		1	
47	HP055	Poll Pin	Ø5x12L	1	
48	HS559	Cross Round Head Screw	M3x80L	2	
49	HW101	Spring Washer	M3	2	
50	HW001	Washer	M3	2	
57	HS328	Hex. Socket Head Screw	M6x16L	2	
57-1	HS234	Hex. Socket Head Screw	M6x40L	1	
57-2	HS237	Hex. Socket Head Screw	M6x55L	1	
58	CAHK1212	Bearing	HK1212	2	
59	112025	Washer		2	
60	112023	Gear		1	
61	CA6200ZZ	Bushing	6200ZZ	3	
62	112021	Gear		1	
63	HK025	Key	6X6X20L	1	
64	CA6205-2RS	Bearing	6205-2RS	1	
65	112061	Bushing		1	
67	112022	Gear		1	
70	112064	Tension Indication Ring		1	

PARTS LIST

MODEL NO. 150

CODE NO	PART NO	DESCRIPTION	SPECIFICATION	QTY	NOTE
71	112063	Tube		1	
72	112062	Tension Indication Plate		1	
73	HS519	Cross Round Head Screw	M5X10L	2	
91	112040E	Swivel Base		1	
92	HW105	Spring Washer	M8	6	
93	HS242	Hex. Socket Head Screw	M8x20L	6	
94	111059	Coaster		4	
95	HW025	Washer	M10x27x3t	1	
96	HB804	Nut	M10	1	
97	32427	Carriage Screw		1	
98	HN010	Hex. Nut	M14xP1.5	2	
99	111057	Distance Set Rod		1	
100	111058	Distance Set Bracket		1	
100-1	111097	Plum handle		1	
100-2	HS036	Hex. Head Screw	M6x30L	1	
101	111045	Angle Margin		2	
102	HS527	Cross Round Head Screw	M6x10L	2	
104	112049E	Degree-Meter		1	
105	HH005	Rivet	§ 2X6L	2	
107	HS033	Hex. Head Screw	M6x15L	1	
108	HN004	Hex. Nut	M6	1	
109	HS263	Hex. Socket Head Screw	M10x45L	1	
110	111039B	Knob		1	
111	HW030	Washer	M10X27X2t	2	
112	112060	Indicating Washer		1	
113	HD703	Cross Round Head Screw	M5X8L	1	
115	HS046	Hex. Head Screw	M8X20L	1	
116	112033	Spring		1	
118	112044B	Shaft		1	
118-1	HS231	Hex. Socket Head Screw	M6X25L	3	
118-3	HW006	Washer	M10	1	
118-4	HS259	Hex. Socket Head Screw	M10X25L	1	
119	112011E	Swivel Arm		1	
120	112052A	Washer		1	
122	E195312J	Power cable		1	
123	111091	Cable Setting Nut		1	
124	HS823	Cross Round Head Screw	Ø4X25L	2	
126S	112087S	Switch Assembly		1	
126-1	112087	Cover		1	
126-2	HS522	Cross Round Head Screw	M5x25L	2	

PARTS LIST

MODEL NO. 150

CODE NO	PART NO	DESCRIPTION	SPECIFICATION	QTY	NOTE
126-3	111087A	Cover		1	
126-4	HS815	Cross Round Head Screw	Ø3.5X35L	6	
126-5	111134	Speed plate		1	
126-6	ET2147	Revolution Knob		1	
126-7	ET1156	ON/OFF Switch	KJD-17(220V)	1	
126-7	ET1159	ON/OFF Switch	KJD-17(110V)	1	
126-7	ET1249	ON/OFF Switch	HY-18	1	
126-8	HS610	Flat Cross Head Screw	M5x10L	1	
126-9	112059	Switch Cut Off Tip		1	
126-10	112058	Shaft		1	
126-11	112057	Spring		1	
126-12	ET1628	Switch		1	
126-13	E012112			1	
131	HB814	Hex. Nut	M30XP1.5	1	
134	HN005	Hex. Nut	M8	1	
140	112090	Pivot Pin	Ø6X20L	1	
142S	112041ES	Vise Base Assembly		1	
142-3	111051A-2	Bushing		1	
142-4	112051E	Leadscrew		1	
142-5	112041E	Vise Base		1	
142-6	112042E	Vise Jaw Bracket		1	
142-8	112068E	Cover		1	
142-9	HW104	Washer	M6	1	
142-10	HS227	Hex. Socket Head Screw	M6x5L	1	
160	HW306	Star Washer	M5	1	
161	HS519	Cross Round Head Screw	M5X10L	1	

ADDRESS:

SERIAL No.:

PLEASE WRITE DOWN THE SERIAL NO. ON THIS BLOCK FROM THE NAME PLATE AFTER YOU RECEIVE THIS MACHINE.