

Manual
TOOL FRANCE
Metal cutting band saw
TFS-180DV



EC Declaration of Conformity



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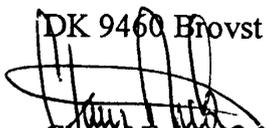
hereby declares that

TOOL FRANCE TFS-180DV is manufactured in accordance with the provisions of the COUNCIL DIRECTIVE of 17. May 2006 (2006/42/EC) – The Machinery Directive (order no. 561 of 25 June 1994 with subsequent amendments)

2006/42/EC: Directive on machinery-safety
2004/108/EC: Directive on Electromagnetic Compatibility
2006/95/EC: Low Voltage Equipment Safety directive

Also in accordance with:

- The council directive of 19 February 1973 (73/23/EEC) – The Low Voltage Directive – with later amendments (order no. 797 of 30 August 1994)
- The council directive of 3 May 1989 (89/336/EEC) – The EMC Directive – with later amendments (order no. 796 of 5 December 1991 with subsequent amendments)

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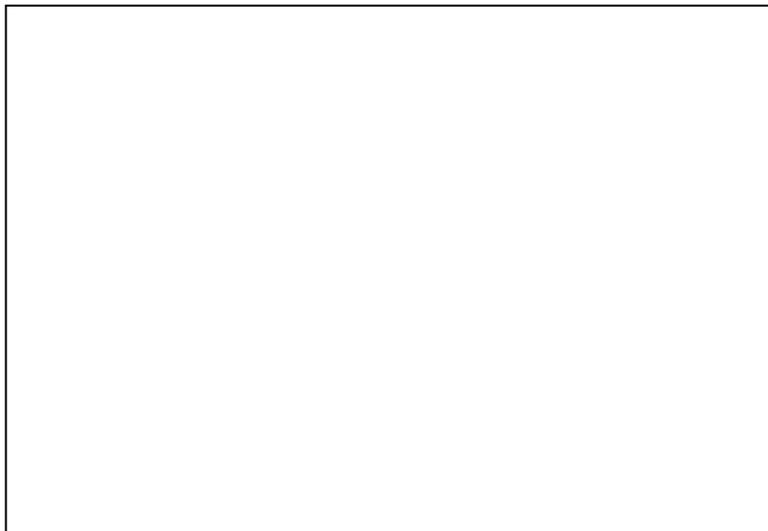


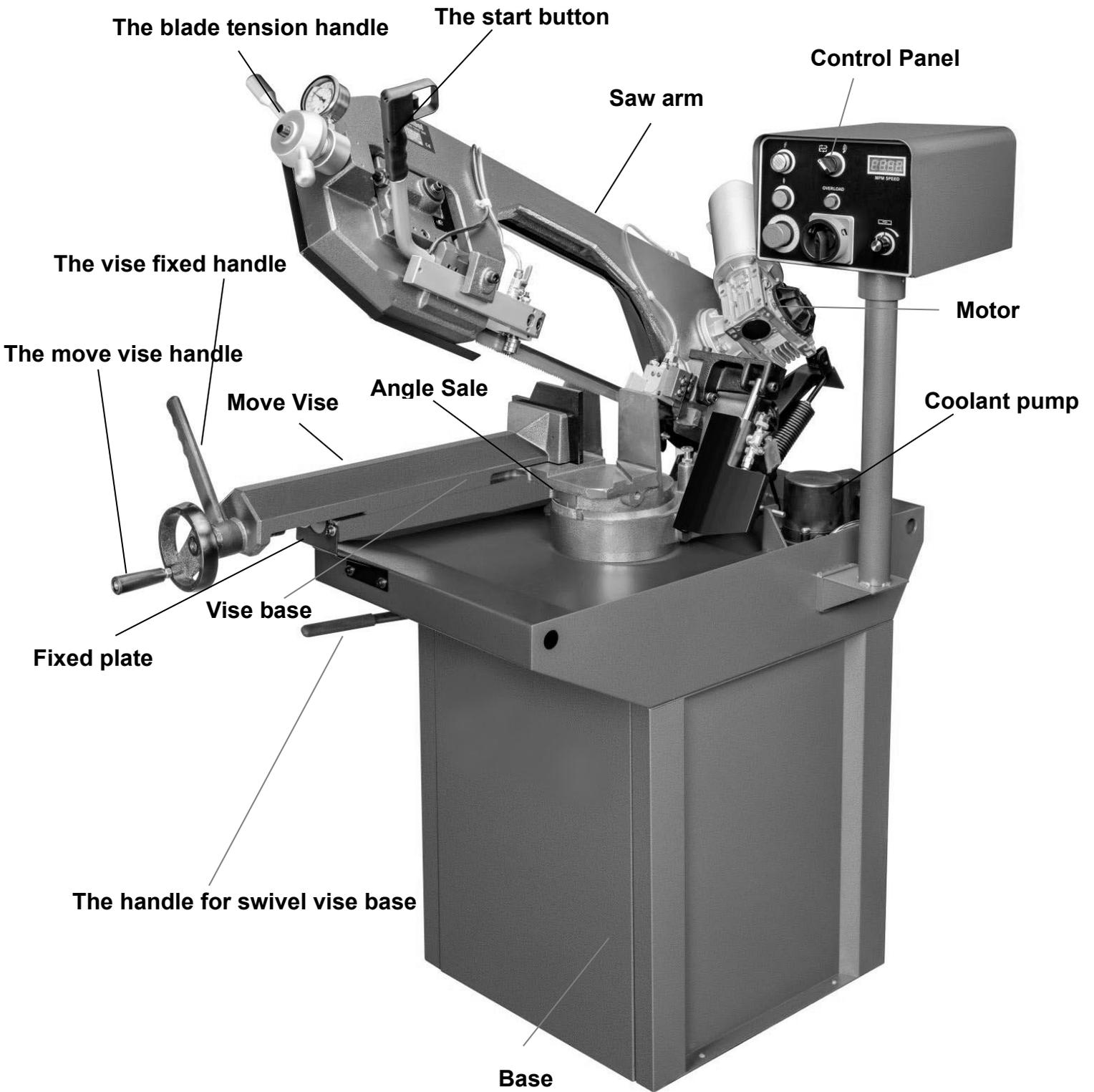
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CAUTION

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. OVERALL ASPECT



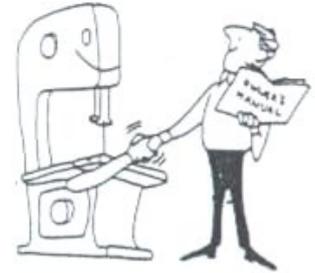
2. Safety rules for stationary power tools.

Follow them to achieve best results and full benefit from your new machine.



The very good craftsman respects the tools with which he works. He knows they represent years of constantly improved design. He also knows that they are dangerous if misused.

This is the theme of a new safe-use program for stationary power tools. The safety rules are based on approved practices in industrial and home shops.



1. Know your power tool. Read the owner's manual carefully. Learn its applications and limitations, as well as the specific potential hazards peculiar to this tool.

2. Keep guard in place and in working order.



3. Ground all tools. If tool is equipped with three-prong plug, it should be plugged into a three-hole electrical receptacle. If an adapter is used to accommodate a two-prong receptacle, the adapter wire must be attached to a known ground. Never remove the third prong.



4. Remove adjusting keys and wrenches. Form habit of checking to see that keys and adjusting wrenches is removed before turning it on.

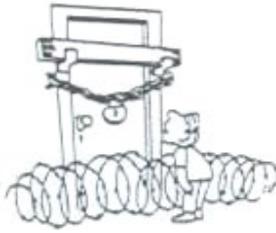
5. Keep work area clean. Cluttered areas and benches invite accidents.



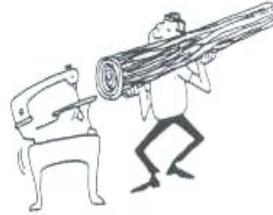
7. Keep children away. All visitors should be kept in a safe distance from work area.



6. Avoid dangerous environment. Don't use power tools in damp or wet locations or expose them to rain. Keep your work area well lighted.



8. Make workshop kidproof with padlocks, master switches, or by removing starter keys.



11. Wear proper apparel. Wear no loose clothing, gloves, neckties, rings, bracelets, or other jewelry which may get caught in moving parts. Non-slip footwear is recommended. Wear protective hair covering to contain long hair.

9. Don't force tool. It will do the job better and be safer at the rate for which it was designed.



12. Always use safety glasses. Also use face or dust mask if cutting operation is dusty. Everyday eyeglasses only have impact resistant lenses. They are **NOT** safety glasses.

10. Use right tool. Don't force tool or attachment to do a job it was not designed for.

14. Don't overreach. Keep proper footing and balance at all times.



13. Secure works. Use clamps or vise to hold works, when practical. It's safer than using your hands and it frees both hands to operate tool.

16. Disconnect tools before servicing and when changing accessories such as grinding wheels, polishing mops, grinding belts, blades, bits, cutters, etc.

15. Maintain tools with care. Keep tools sharp and clean for best and safest performance. Follow



17. Reduce the risk of unintentional starting. Make sure switch is in off position before plugging in.



18. Use recommended accessories. Consult owner's manual for recommended accessories. Use of improper accessories may cause risk of injury to persons.



**WARNING: FAILURE TO FOLLOW THESE RULES
MAY RESULT IN SERIOUS PERSONAL INJURY**

As with all machinery there are certain hazards involved with operation and use of the machine. Using the machine with respect and caution will considerably lessen the possibility of personal injury. However, if normal safety precautions are overlooked or ignored, personal injury to the operator may result. This machine was designed for certain applications only. We strongly recommend that this machine NOT be modified and/or used for any application other than for which it was designed. If you have any questions relative to its application DO NOT use the machine until you contact with us and we have advised you.

Your machine might not come with a power socket or plug. Before using this machine, please do ask your local dealer to install the socket or plug on the power cable end.

2. SPECIFICATION

MOTOR		500W	
Saw Blade Speed		25 ~ 97 MPM	
		80 ~ 318 FPM	
Blade Size(mm)		20x0.9x2085	
Dimension L x W x H (mm)		1210x510x1415	
Packing	N.W / G.W (kgs)		180 / 210
	Measurement		1220x670x900
	Sets per 20' CTNR		52 sets
Cutting Capacity	0°	○(mm/inch)	180 / (7 ")
		□(mm/inch)	180x180(7 "x7 ")
	+ 45°	○(mm/inch)	115 (4.5")
		□(mm/inch)	110x110 (4 .3 "x4 .3")
	+ 60°	○(mm/inch)	70(2.75")
		□(mm/inch)	70x70(2.75"x 2.75")

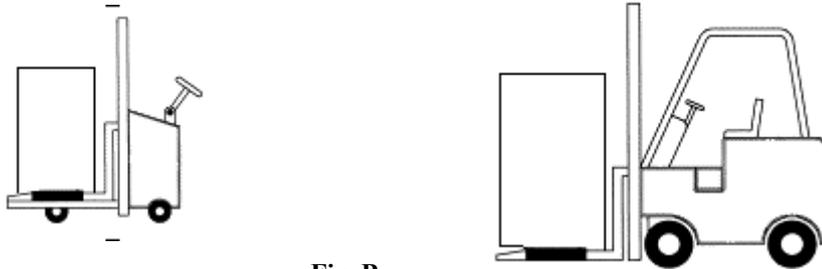
3. FEATURES:

1. This machine is useful for cutting normal steel, steel pipe, and provides cutting angle at + 0° and +45° by the swivel head.
2. A tooth selection chart was provided on the machine for cutting reference.
3. Variable speed control gives convenient selection of speeds. (This machine comes with a standard 2-speed motor. But can be purchased with a DC driven motor as an option.)
4. This machine is using manual cutting by pulling down the saw bow by hand. Start(press) button is located at the handle of the saw bow. Motor stops when button was released.
5. Stability of the machine, plus working table height is 950 mm, conforming to human engineering.
6. The one-inch blade and carbide guide provide better result of the cutting surface and efficiency.
7. The one-piece casting and one time CNC processing provide better rigidity and precision of the machine.
8. The one-piece and full coverage blade cover conforms to CE stipulation. Well coolant fluid collection system provides clean and dry, and safety of the working area.
9. Chip pan underneath the working table prevents coolant fluid leaking and keep floor dry.
10. Coolant for cutting: water : oil = 40 : 1 oil specification.

4. TRANSPORTATION & INSTALLATION

5-1 UNPACKING

1. Transportation to desired location before unpacking, please use lifting jack. (Fig. B)
2. Transportation after unpacking, please use heavy duty fiber belt to lift up the machine.



Fig, B

ALLWAYS KEEP PROPER FOOTING & BALANCE WHILE MOVING THIS MACHINE.

5-2 TRANSPORTATION OF MACHINE:

As this machine weights 208 kgs (458.6 lbs.) it is recommended that the machine be transported with help of lifting jack.

Transportation Recommendation:

1. **Tighten** all locks before operation.
2. **Always** keep proper footing & balance while moving this machine, and only use a heavy duty of fiber belt to lift the machine as per Fig. A.
3. **TURN OFF** the power before wiring & be sure machine is properly grounded. Overload & circuit breaker are recommended for safety wiring.
4. **Tighten** 4 bolts to base holes after machine is balanced.
5. **Check** carefully if the saw blade is running in counter-clockwise direction if not, reverse the wiring per circuit diagram, then repeat the running test.
6. **Keep** machine always out from sun, dust, wet, or raining area.

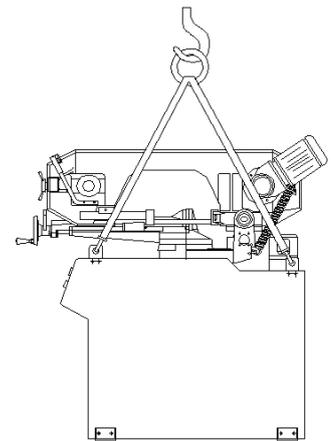


Fig. A

5-3 INSTALLATION:

- (1) **Always** Keep proper footing & balance while moving this 208kgs machine. And only use heavy-duty fiber belt to lift the machine as per Fig. (C).
- (2) Hang the machine up, away from the floor, take away the 4 pads and assemble them on the auxiliary stand. Fix the machine on the auxiliary stand and lock the connection nut.
- (3) **Finish** removing this wooden case/crate from the machine. Unbolt the machine from the crate bottom.
- (4) **Position** & tighten 4 bolts into base holes properly after machine in balance.
- (5) **Turn off** the power before wiring & be sure machine is in proper grounding. Overload & circuit breaker is recommended for safety wiring.
- (6) **Keep** machine always out from sun, dust, wet, raining area.

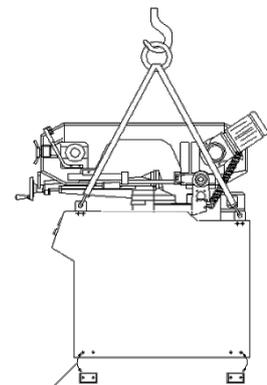
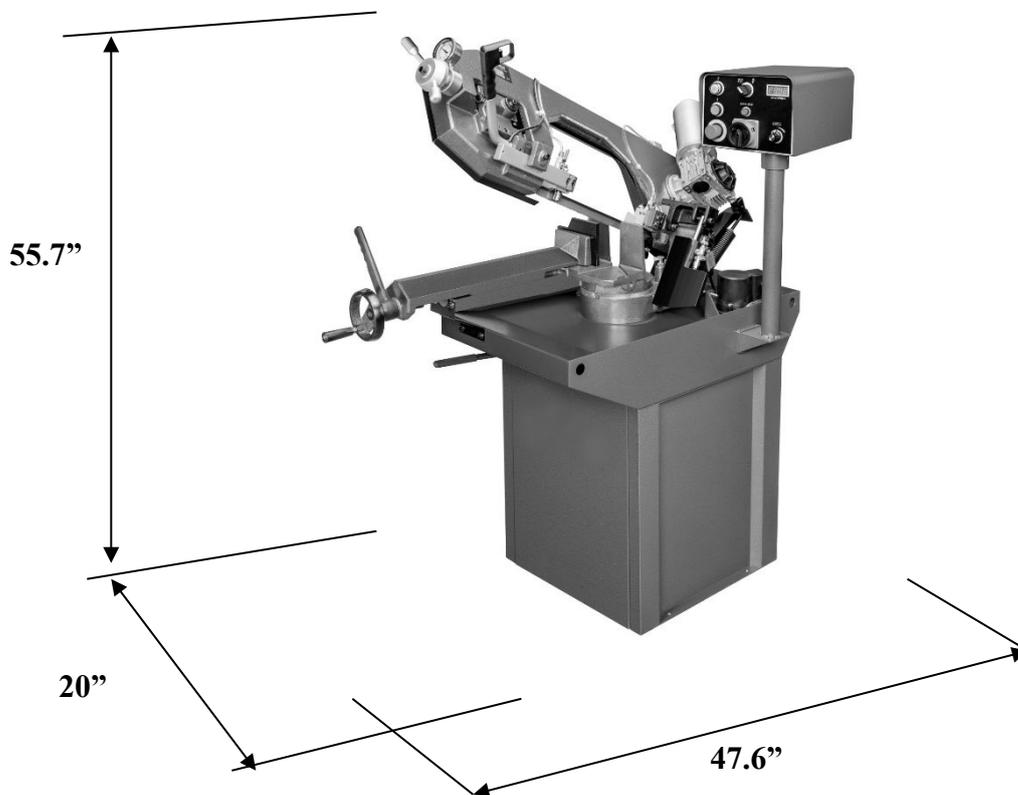


Fig. C

5-4 CLEANING & LUBRICATING

- (1) Your machine has been coated with a heavy grease to protect it in shipping. This coating should be completely removed before operating the machine. Commercial degreaser, kerosene or similar solvent may be used to remove the grease from the machine, but avoid getting solvent on belts or other rubber parts.
- (2) After cleaning, coat all bright work with a light lubricant. Lubricate all points with a medium consistency machine oil.

5. MINIMUM ROOM SPACE FOR MACHINE OPERATION



6. PROPER TOOTH SELECTION

7. MAKE PROPER TOOTH SELECTION

For maximum cutting efficiency and lowest cost per cut, it is important to select the blade with the right number of teeth per inch (TPI) for the material being cut. The material size and shape dictate tooth selection.

TOOTH SELECTION

You need to consider:

The width of the cut - That is, the distance in the cut that each tooth must travel from the point it enters the work-piece until it leaves the work-piece, and

1. The shape of the work-piece.

- **Squares, Rectangles, Flats (Symbol : ■)**
Locate the width of cut on the chart. (Inches on the outer circle and millimeters on the inner circle.) Select the tooth pitch on the ring marked with the square shape which aligns with the width of cut.
EXAMPLE: 6" (150mm) square, use a 2/3 Vari-Tooth.
- **Round Solids (Symbol : ●)**
Locate the diameter of your work-piece on the chart. Select the tooth pitch on the ring marked with the round shape which aligns with the size of stock you are cutting.
EXAMPLE: 4" (100mm) round, use a 3/4 Vari-Tooth.
- **Tubing, Pipe, Structural (Symbol : O H ^)**
Determine the average width of cut by dividing the area of the work-piece by the distance the saw blade must travel to finish the cut. Locate the average width of cut on the chart. Select the tooth Ditch on the ring marked with the tubing and structural shape, which aligns with the average width you are cutting.
EXAMPLE: 4"(100mm) outside diameter, 3"(75mm) inside diameter tubing.
4"(100mm) OD = 12.5 sq.In. (79cm²)
3"(75 mm) ID = 7.0 sq.In. (44cm²)

$$\text{Area} = 5.5 \text{ sq.In. (35cm}^2\text{)}$$

$$\begin{aligned} &5.5 \text{ sq.In. (35cm}^2\text{)} / 4" (100\text{mm)} \\ &\text{distance} = 1.38(35\text{mm)} \text{ average width} \\ &1.38" (35\text{mm)}, \text{ use a } 4/6 \text{ Vari-Tooth} \end{aligned}$$

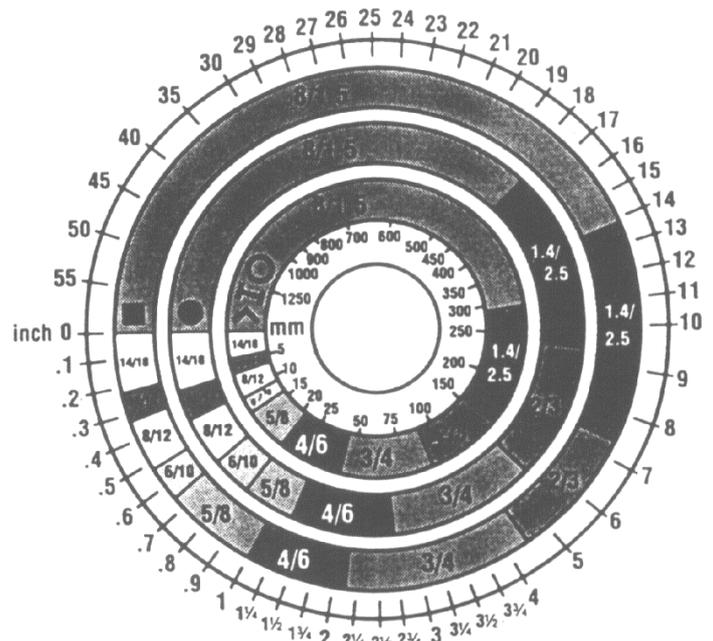
NOTE: The band speed and cutting rate recommendations presented on this chart are approximations and are to be used as a starting point

for most applications. For exact sawing parameters' consult your saw blade supplier.

7.1 BI-METAL SPEEDS AND FEEDS

These figures are a guide to cutting 4"(100mm) material (with a 314 Vari-Tooth) when using a cutting fluid.

Increase Band Speed: 15% When cutting 1/4"(6.4mm) material (10/14 Vari-Tooth)
12% When cutting 3/4"(19 mm) material (6/10 Vari-Tooth)



10% When cutting 1-1/4"(32 mm) material(5/8 Vari-Tooth)
5% When cutting 2-1/2" (64 mm) material(4/6 Vari-Tooth)
Decrease Band Speed: 12% When cutting 8"(200mm) material(2/3 Vari-Tooth)

MATERIAL	ALLOY ASTM NO.	BAND SPEED	
		FT./MIN	M/MIN
Copper Alloy	173,932	314	96
	330,365	284	87
	623,624	264	81
	230,260,272	244	74
	280,264,632,655	244	74
	101,102,110,122, 172	234	71

	1751,182,220,510	234	71
	625,706,715,934	234	71
	630	229	70
	811	214	65
Carbon Steel	1117	339	103
	1137	289	88
	1141,1144	279	85
	1141 HI STRESS	279	85
	1030	329	100
Carbon Steel	1008,1015,1020,1025	319	97
	1035	309	94
	1018,1021,1022	299	91
	1026,1513	299	91
	A36(SHAPES),1040	269	82
	1042,1541	249	76
	1044,1045	219	67
	1060	199	61
	1095	184	56

Ni-Cr-Mo Alloy Steel	8615,8620,8622	239	73
	4340,E4340,8630	219	67
	8640	199	61
	E9310	174	53
Tool Steel	A-6	199	61
	A-2	179	55
	A-10	159	49
	D-2	90	27
	H-11,H-12,H-13	189	58
Stainless Steel	420	189	58
	430	149	46
	410,502	140	43
	414	115	35
	431	95	29
	440C	80	24
	304,324	120	36
	304L	115	35
	347	110	33
	316,316L	100	30
	416	189	58

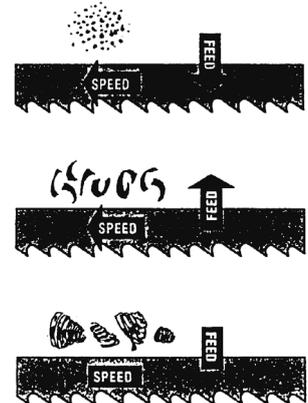
TELLTALE CHIPS

Chips are the best indicators of correct feed force. Monitor chip information and adjust feed accordingly.

Thin or powdered chips – increase feed rate or reduce band speed.

Burned heavy chips – reduce feed rate and/or band speed.

Curly silvery and warm chips – optimum feed rate and band speed.



7. USE OF MAIN MACHINE PARTS

8-1 POWER SYSTEMS AND CONTROL PANEL

Before connecting your machine to an electrical power system, be sure the motor shaft is running in the correct direction.

Refer to the electrical wiring diagram supplied with your machine for instructions on how to connect saw to power source. Power must be cut off when wheel cover is opened or during repairing.

Please check the moving direction of the blade. If the blade is moving in the wrong direction, please re-connect the wire.

8-2 STARTING AND STOPPING MACHINE (with handle switch)

1. The motor will be stopped when the Frame touch the Limit switch (K).
2. The coolant system will run and stop with blade operation.
3. Start the motor by turning the start button (K), Push the button (L) to start blade saw. Unhand button (B) stop The motor.



8-3. AUTO / MANUAL MODE OPERATION

In the event of incorrect operation or dangerous, condition, press the E-STOP button (D) to immediately shut off all functions of the saw. Twist the emergency stop button clockwise (cw) to reset.

Note: Resetting the E-STOP button will not start the machine.

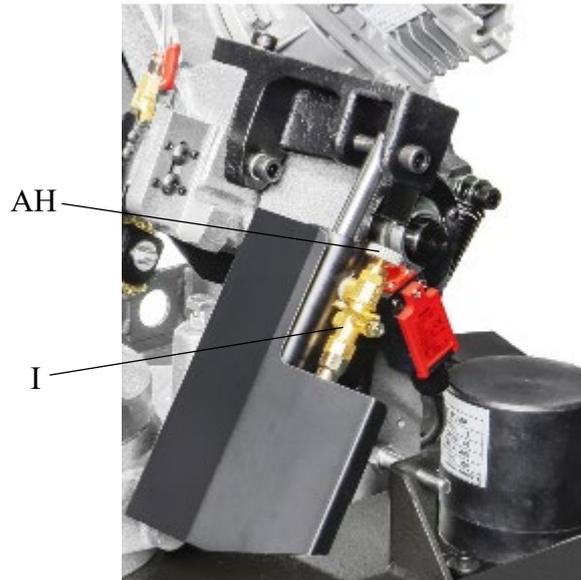
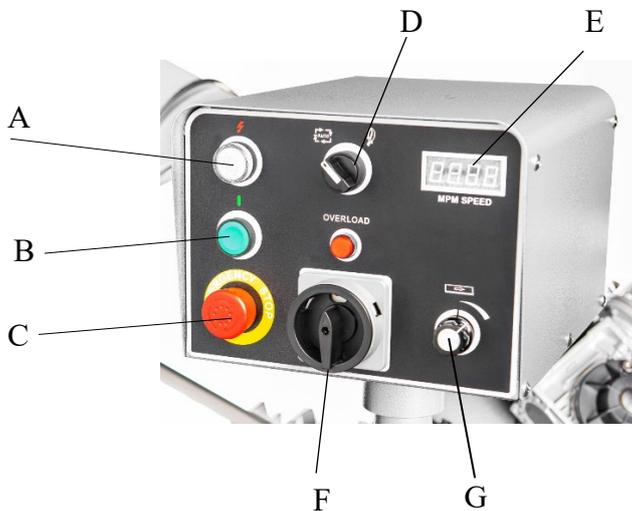
1. AUTO MODE OPERATION

- 1-1 Close the handle on the hydraulic ball valve (I) by turning it counterclockwise (ccw).
- 1-2 Turn the flow control knob (AH) clockwise (cw) to shut off the hydraulic flow. This will prevent the saw bow from dropping when the ball valve is opened.
- 1-3. Increase the bow weight. Rotate the wing nut (AI) counterclockwise (ccw) to decrease the tension on the spring.
- 1-4. Load piece part and clamp securely.
- 1-5. Turn the main switch (F) to "ON". Check to see that indicator light (A) is lit.
- 1-6. Set the blade speed with control knob (G).
- 1-7 Set switch (D) counterclockwise (ccw) to auto mode
- 1-8 Press the green start button (B). The saw motor and the coolant pump motor should both start.
- 1-9 Open the ball valve (I) clockwise (cw).
- 1-10 Turn the flow control knob (AH) clockwise (cw) to slow down the descent or counterclockwise (ccw) to speed it up.

2. MANUAL MODE OPERATION

- 2-1 Close the handle on the hydraulic ball valve (I) by turning it counterclockwise (ccw).
- 2-2 Turn the flow control knob (AH) clockwise (cw) to shut off the hydraulic flow. This will prevent the saw bow from dropping when the ball valve is opened.
- 2-3 Reduce the bow weight. Rotate the wing nut (AI) clockwise (cw) to increase the tension on the spring
- 2-4 Load piece part and clamp securely.
- 2-5 Turn the main switch (F) to "ON". Check to see that the indicator light (A) is lit.
- 2-6 Set the blade speed with control knob (G).
- 2-7 Set switch (D) to manual mode for trigger operation.
- 2-8 While firmly holding the control handle of the saw bow, open ball valve (I) clockwise (cw).
- 2-9 Fully open the flow control knob (AH) counterclockwise (ccw).
- 2-10 Squeeze the start trigger to energize the blade motor and lower saw bow to begin cutting.
- 2-11 When saw bow reaches bottom limit, the micro switch (K) is actuated and shuts off the saw motor.
- 2-12 Return the saw bow to its start position and close ball valve (I).

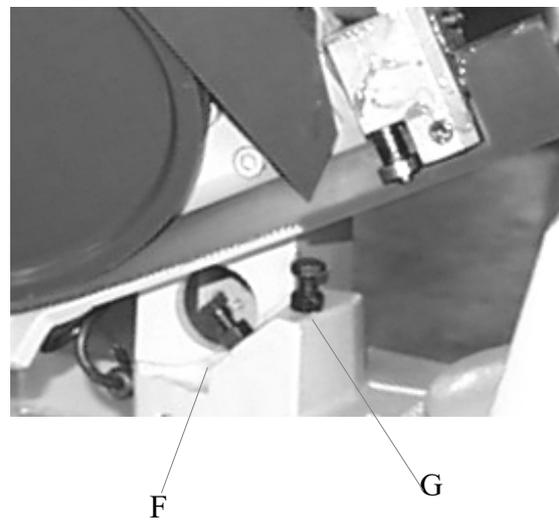
2-13. Unclamp and reset the piece part to continue the next cutting cycle



8-4 ADJUSTING UPWARD AND DOWNWARD TRAVEL OF SAW ARM

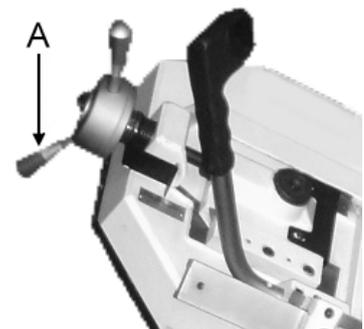
The downward travel of the saw arm should be adjusted so that when the saw arm is in the extreme downward position, the teeth of the blade will not touch the table surface. The stop screw (G) is used to adjust the distance between blade and table surface. After the distance is adjusted, tighten lock nut.

The screw (F) is used to adjust the saw arm upward angle, tighten lock nut.



8-5 ADJUSTING BLADE TENSION AND BLADE TRACKING

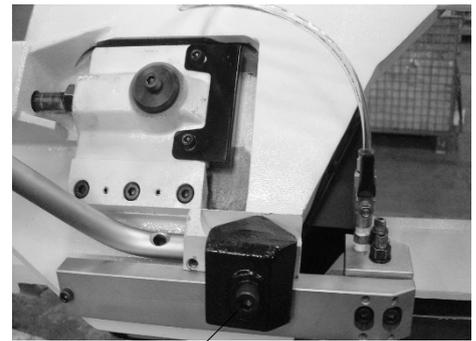
To tension the blade, turn the blade tension handle (fig. 1)(A) clockwise. The scale is graduated to indicate blade tension of 20,000, 30,000 and 35,000 pounds per square inch (psi). For carbon blades, the blade should be tensioned at 20,000 psi. For bi-metal blades (similar to the one supplied with the machine), the blade should be tensioned at 30,000 or 35,000 psi. Always release blade tension at the end of each working day to prolong blade life. Make sure the blade is tensioned correctly before checking or adjusting tracking. The blade is tracking properly when the back of the blade



is just lightly touching the wheel flanges of both wheels while the machine is running.

8-6 ADJUSTING CUTTING WIDTH

First loosen screw (A) (fig.2). Move the left blade guide bar to the suitable position. Then tighten screw (A).



A Fig. 2

8-7 ADJUSTING BLADE GUIDE ROLLER BEARINGS, CARBIDE BLADE GUIDES AND BACK-UP BEARINGS AND CLEARING THE CUTTING CHIP

Before making the following adjustments, make sure the blade is tracking and tensioned properly:

1. The back of the blade (A) (fig3) should ride against the back-up block (B). To adjust, loosen set screw (C) and move the guide block (D) up or down, until it lightly touches the back of the blade .

2. The saw blade (A) should also ride between and lightly touch the two blade guide roller bearings (E) and (F) (fig. 9) The front bearing (E) (fig. 9) is mounted on an eccentric, and can easily be adjusted suit blade thickness by loosening set screw (G) and turning shaft (E).

3. The carbide blade guides (H) (fig 9) should also be adjusted so they lightly touch the blade by loosening screw (K).

4. The blade guide roller bearings, carbide guides and backup bearing on holder (fig 9) should be adjusted in the same manner.

5. Cutting chips on the blade will be cleared by the steel brush.

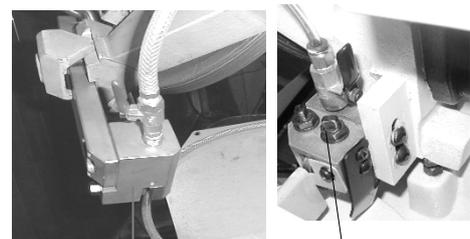


A F G E H Fig.3 B K D C

8-8 BLADE AND COOLING SYSTEM

The use of proper cutting fluid is essential to obtain maximum efficiency from a band saw blade. The main cause of tooth failure is excessive heat build-up. This is the reason that cutting fluid is necessary for long blade life and high cutting rates. cutting area and blade wheels should be kept clean at all time.

The rate of coolant flow is controlled by the stop valve lever (A) (fig. 4), which directs the coolant onto the blade. The lever (A) is shown in the off position.



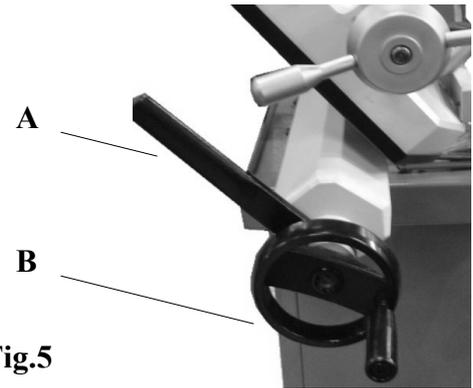
A Fig.4 A

Always keep the floor dry to prevent slip or any accident.

8-9 OPERATING THE TRU-LOCK VISE SYSTEM INSTRUCTIONS

To operate, proceed as follows:

- 1) Raise the arm 2" above the work piece; close the cylinder valve to maintain the arm 2" above the work piece.
- 2) Put your work piece on the table. Move the vise handle (A) upwards to an angle of 45 degree (a-Half opened) to loosen the vise. Move the vise jaw bracket against the work piece by turning the rectangular handle (B) . Push down on the vise handle (A) to lock the work piece in position.
- 3) To loosen the work piece from the vise, hold the work piece and lift the vise handle (A) to a 90 degree position (completely opened). Remove work piece.



CONTINUED CUTTING:

When you need to cut a work piece many times, just raise the vise handle (A) to loosen and adjust work piece position. Then push down on the same handle to tighten. You can also push the vise handle (A) down first, and then tightening the vise by turning the rectangular handle (B) clockwise. After finishing the cut, you can loosen the work piece by turning rectangular handle only. This Tru-Lock Vise System has a 4mm tightening travel when the rectangular handle is completely opened. There is only a 2mm tightening travel necessary for normal metal materials. The operator can tighten the work piece by pushing down the vise handle (A) with a certain amount of pressure depending on hardness of work piece.

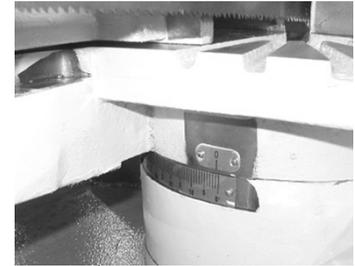
8-10 VARIABLE CUTTING ANGLE SELECTION

Please proceed as follows to obtain desired cutting angle. The swivel range is from 0° to 60° clockwise. Before swinging the base, make sure there is nothing in the way, or any interference.

1. Pull out the bar (A) (fig. 6) swing and hold the bar.
2. Push to turn the swivel base to desired angle. Refer to scale on (B) for degree.
3. Lock the bar (A), then start the cutting.



Fig.6 A



B Fig.7

8-11 REMOVING AND INSTALLING THE BLADE

When it is necessary to replace the blade, proceed as follows:

1. Raise the saw frame about 6" and close the feed on/off knob by turning it clockwise as far as it will go (fig 8).
2. Move the blade guide arm to the right.(Fig.9).
3. Disconnect the machine from the power source. Loosen cover screw, remove cover (A), open the cover (B), remove cover (C) , then clean the chips and dirt inside the machine.
4. Release blade tension (F) (fig 9) by turning the blade tension hand-wheel counterclockwise.
5. Remove the blade from both wheels and out of each blade guide. But remove side (B) saw blade. When totally released, then remove the side (A).
6. Make sure the teeth of the new blade are pointing in the right direction. IF necessary, turn the blade inside out.
7. Place the new blade on the wheels. In the blade guides and adjust blade tension and blade guides.

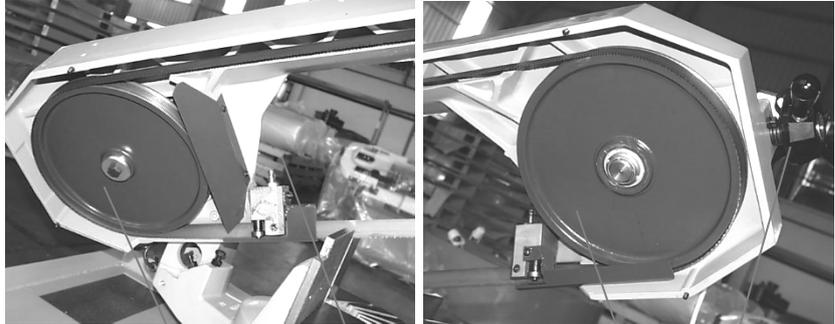


Fig.8 A B

Fig.9 C F

8. MAINTAINING

That's easier to keep machine in good condition or best performance by means of maintaining it at any time than remedy it after it is out of order.

(1) Daily Maintenance (by operator)

- (a) Fill the lubricant before starting machine every day.
- (b) If the temperature of spindle caused over-heating or strange noise, stop machine immediately to check it for keeping accurate performance.
- (c) Keep work area clean; release vise, cutter, workpiece from table; switch off power source; take chip or dust away from machine and follow instructions lubrication or coating rust proof oil before leaving.

(2) Weekly Maintenance

- (a) Clean and coat the cross leading screw with oil.
- (b) Check to see if sliding surface and turning parts lack of lubricant. If tile lubricant is insufficient, fill it.

(3) Monthly Maintenance

- (a) Check if the fixed portion has been loose.
- (b) Lubricate bearing worm, and worm shaft to avoid the wearing.

(4) Yearly Maintenance

- (a) Adjust table to horizontal position for maintenance of accuracy.
- (b) Check electric cord, plugs, switch, at least once a year to avoid loosening or wearing.

9. TROUBLE SHOOTING

Symptom	Possible Cause(s)	Corrective Action
Machine cannot be started	<ol style="list-style-type: none"> 1. Power is not plugged; the power light on control panel is not on. 2. Motor cannot be started; power was cut by limit switch. 3. Operation button cannot be normally operated. 	<ol style="list-style-type: none"> 1. Check the motor specification; connect the power with correct power supply. Make sure the power light is on. 2. Make sure the cover is in correct position. 3. Push the emergency button; return it to original position. Then release the emergency button.
Excessive Blade Breakage	<ol style="list-style-type: none"> 1. Materials loosen in vise. 2. Incorrect speed or feed 3. Blade teeth spacing too large 4. Material too coarse 5. Incorrect blade tension 6. Teeth in contact with material before saw is started 7. Blade rubs on wheel flange 8. Miss-aligned guide bearings 9. Blade too thick 10. Cracking at weld 	<ol style="list-style-type: none"> 1. Clamp work securely 2. Adjust speed or feed 3. Replace with a small tooth spacing blade 4. Use a blade of slow speed and small teeth spacing 5. Adjust to where blade just does not slip on wheel 6. Place blade in contact with work after motor is started 7. Adjust wheel alignment 8. Adjust guide bearings 9. Use thinner blade 10. Weld again, beware the welding skill.
Premature Blade Dulling	<ol style="list-style-type: none"> 1. Teeth too coarse 2. Too much speed 3. Inadequate feed pressure 4. Hard spots or scale on material 5. Work hardening of material. 6. Blade twist 7. Insufficient blade 8. Blade slide 	<ol style="list-style-type: none"> 1. Use finer teeth 2. Decrease speed 3. Decrease spring tension on side of saw 4. Reduce speed, increase feed pressure 5. Increase feed pressure by reducing spring tension 6. Replace with a new blade, and adjust blade tension 7. Tighten blade tension adjustable knob 8. Tighten blade tension
Unusual Wear on Side/Back of Blade	<ol style="list-style-type: none"> 1. Blade guides worn. 2. Blade guide bearings do not adjust properly. 3. Blade guide bearing bracket is loose 	<ol style="list-style-type: none"> 1. Replace. 2. Adjust as per operator's manual. 3. Tighten.
Teeth Ripping from Blade.	<ol style="list-style-type: none"> 1. Tooth too coarse for work 2. Too heavy pressure; too slow speed. 3. Vibrating workpiece. 4. Gullets loading 	<ol style="list-style-type: none"> 1. Use finer tooth blade. 2. Decrease pressure, increase speed 3. Clamp work piece securely 4. Use coarser tooth blade or brush to remove chips.
Motor running too hot	<ol style="list-style-type: none"> 1. Blade tension too high. 2. Drive belt tension too high. 3. Blade is too coarse for work 4. Blade is too fine for work 	<ol style="list-style-type: none"> 1. Reduce tension on blade. 2. Reduce tension on drive belt. 3. Use finer blade. 4. Use coarse blade.

	<ul style="list-style-type: none"> 5. Gears aligned improperly 6. Gears need lubrication 7. Cut is binding blade 	<ul style="list-style-type: none"> 5. Adjust gears so that worm is in center of gear. 6. Check oil path. 7. Decrease reed anti speed
Bad Cuts (Crooked)	<ul style="list-style-type: none"> 1. Feed pressure too great. 2. Guide bearings not adjusted properly 3. Inadequate blade tension. 4. Dull blade. 5. Speed incorrect. 6. Blade guides spaced out too much 7. Blade guide assembly loose 8. Blade truck too far away from wheel flanges 	<ul style="list-style-type: none"> 1. Reduce pressure by increasing spring tension on side of saw 2. Adjust guide bearing, the clearance cannot greater than 0.001. 3. Increase blade tension by adjust blade tension. 4. Replace blade 5. Adjust speed 6. Adjust guide space. 7. Tighten 8. Re-track blade according to operating instructions.
Bad Cuts (Rough)	<ul style="list-style-type: none"> 1. Too much speed or feed 2. Blade is too coarse 3. Blade tension loose 	<ul style="list-style-type: none"> 1. Decrease speed or feed. 2. Replace with finer blade. 3. Adjust blade tension.
Blade is twisting.	<ul style="list-style-type: none"> 1. Cut is binding blade. 2. Too much blade tension 	<ul style="list-style-type: none"> 1. Decrease reed pressure. 2. Decrease blade tension.
Saw arm can not be raised up after pushing the raising button	<ul style="list-style-type: none"> 1. Improper setting of depth gauge 	<ul style="list-style-type: none"> 1. Press the emergency stop. Button and RESET. 2. Check the upper limit switch and stop round. Position. Make sure the limit switch is always underneath the stop round bar. 3. Check the oil gauge; make sure, the oil is in proper range. 4. Check the motor revolution direction; make sure the motor revolution is in clockwise direction.

10. SPARE PARTS:

CODE NO	PART NO	DESCRIPTION	SPECIFICATION	QTY	NOTE
1	121005	Body Frame		1	
2	121008	Anchor Block		1	
2A	121151	Anchor Plate		1	
2B	HT001	Round Head Screw	M5X10L	2	
3	121024	Shaft		1	
4	HS242	Hex. Socket Head Screw	M8X20L	1	
5	121050	Anti-Chip Cover		2	
6	CA32004	Tapered Bearing	32004	2	
7	121011	Washer		1	
8	HS051	Hex. Head Screw	M8X45L	1	
9	HN005	Hex. Nut	M8	1	
10	198148M	Tension Indication Plate		1	
10-1	198170	Tension Indication Plate	198026A用	1	
11	CA51203	Bearing	51203	1	
12	198086	Knob		2	
13	198051A	Blade Tension Handle		1	
14	198093	Spring Washer	φ ID16.3X φ 31.5X1.8t	10	
15	121026A	Leadscrew		1	
16	HN008	Hex. Nut	M16XP2.0	1	
17	HS243	Hex. Socket Head Screw	M8X25L	3	
18	198013	Fixed Block		1	
19	HP022	Pin	φ 5X40	2	
21	121012	Fixed Block		1	
22	HS243	Hex. Socket Head Screw	M8-1.25Px25L	2	
23	HS468	Hex. Socker Headless Screw	M6X16L	8	
24	HS243	Hex. Socket Head Screw	M8X25L	1	
25	121016	Blade adjust stick		1	
26	HS430	Hex. Socker Headless Screw	M8X10L	2	
27	HS228	Hex. Socket Head Screw	M6X10L	1	
28	198044	Connecting Tube		1	for "HM"
28	198044A	Connecting Tube		1	for "HB"
29	198075	Handle		1	for "HM"
29	198193	Handle Cap		1	for "HB"
30	121078	Fixed Plate		1	
36	HH005	Rivet	φ 2X6	2	
37	121061	Bearing Shaft		2	
38	121015	Blade Adjust (Front)		1	
39	198152	Scale	PATEN NO:M272607	1	
40	HD610	Hose Clip	φ 8	3	
41	HS519	Cross Round Head Screw	M5X10L	3	
43	121020	Eccentric Guide		2	
44	CA6082RS	Bearing	608-2RS	10	
45	HCS39	C-Retainer Ring	φ 8	4	
46	121019	Eccentric Guide		2	
47	HT017	Round Head Screw	M5X12L	3	
48	121034	Blade Cover (Front)		1	

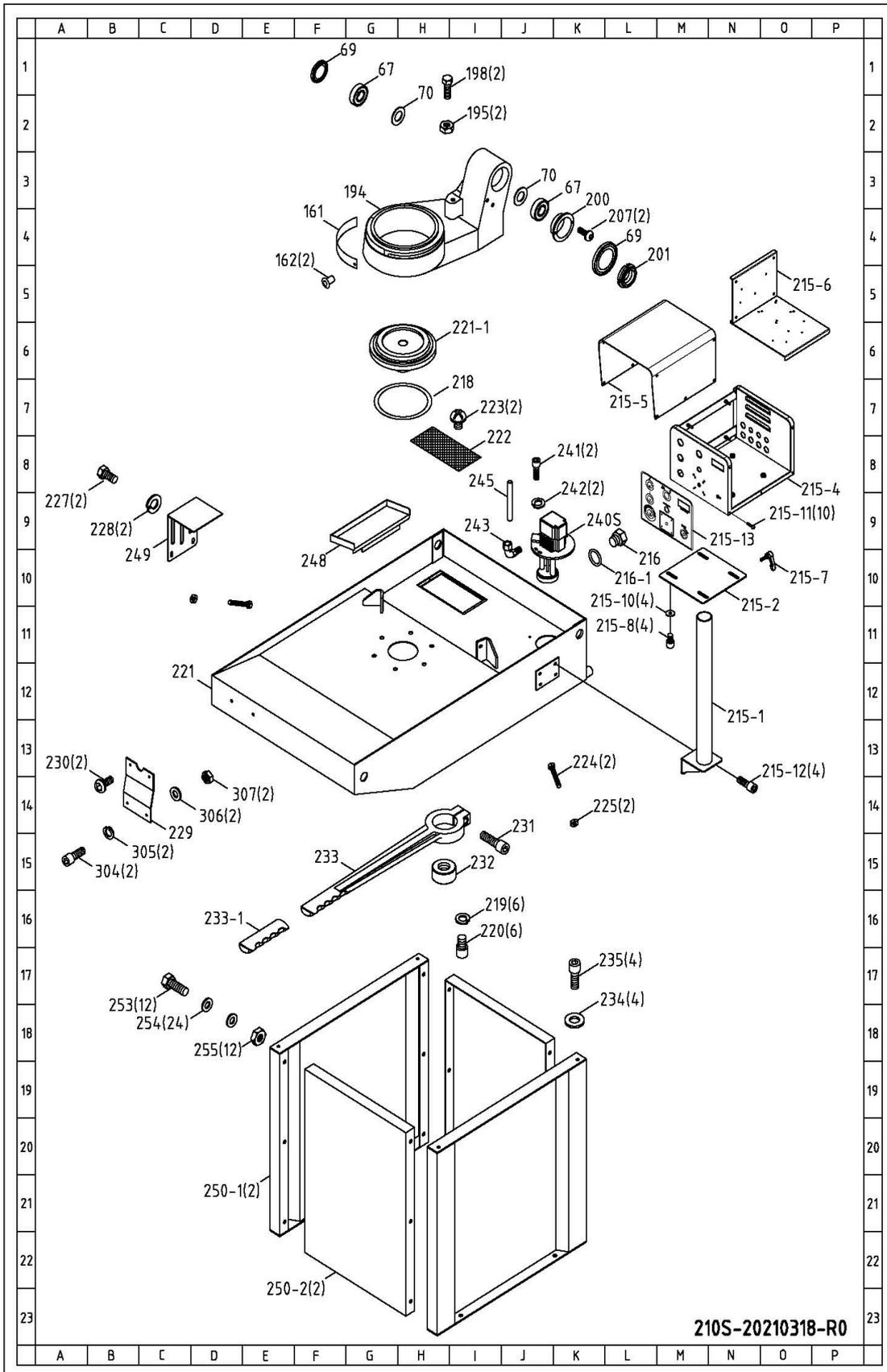
CODE NO	PART NO	DESCRIPTION	SPECIFICATION	QTY	NOTE
51	HE906	Hex. Nut	M10X14-6	4	
52	HW106	Spring Washer	M10	4	
53	121017	Deflector Plate		1	
54	121014	Blade Adjustable (Rear)		1	
56	HT018	Round Head Screw	M8X25L	2	
58S	121032BS1	Brush Assembly		1	
58-1	121032B	Brush Support		1	
58-2	181241C	Brush		1	
58-3	HS036	Hex. Head Screw	M6x30L	1	
58-4	HW016	Washer	ø6.5Xø18Xt1.5mm	2	
58-5	HN004	Hex. Nut	M6	2	
61	198108M	Cover		1	
62	HS241	Hex. Socket Head Screw	M8x15L	2	
64	121152	Hex. Socker Headless Screw	M8X20L	1	
65	121028	Frame Pivot Shaft		1	
67	CA32006	Tapered Bearing	32006	2	
69	198050	Anti-Chip Cover		2	
70	121055	Prive Shaft Washer		2	
71	MMDV10505-5	DC motor	500W/220V1PH,2A	1	
71-1	HK114	KEY	6X6X40L	1	
72	HS034	Hex. Socket Head Screw	M6x20L	4	
73	HW104	Spring Washer	M6	4	
74S	M198201MB	Gear Box	E=1/30	1	G5A
75	HW106	Spring Washer	M10	4	
76	HS058	Hex. Socket Head Screw	M10x20L	4	
77	HD802	PU Tube	§ 6x800L	1	
78	HD607	Hose Fitting	§ 8X1/4"PT	1	
79	HS229	Hex. Socket Head Screw	M6X15L	2	
80	198067	3 Way Valve		1	
81	HD801	PU Tube	§ 6x240L	1	
82	HD803	Valve	1/8"	2	
82A	198168M	Handle		2	
83	HD606	Hose Fitting	§ 6X1/8"PT	4	
84	121035	Bushing		1	
85	HS259	Hex. Socket Head Screw	M10X25L	1	
86	198037	Washer		1	
87	HK048	Round Head Key	7X7X50	1	
88	121023	Output Shaft		1	
89	HK043	Round Head Key	7X7X25	1	
92	198042M	Spring		2	for "HM"
92	198042M	Spring		1	for "HB"
92A	198171M	Bushing		2	for "HM"
92A	198171M	Bushing		1	for "HB"
93	121069M	Spring Bracket		1	for "HM"
93	121069MH	Power Cutting Bracket		1	for "HB"
93A	101008	Washer		1	for "HB"

CODE NO	PART NO	DESCRIPTION	SPECIFICATION	QTY	NOTE
93A	101008	Washer		2	for "HM"
93-1	121069MK	Down Bracket		1	for "HB"
93-2	HS219	Hex. Socket Head Screw	M5x15L	2	for "HB"
93-3	HW103	Spring Washer	M5	2	for "HB"
93-4	101008	embowed Washer		1	for "HB"
93-5	HN006	Hex. Nut	M10	1	for "HB"
93-5	HN006	Hex. Nut	M10	2	for "HM"
94	HS274	Hex. Socket Head Screw	M10X100L	1	for "HB"
94	HS274	Hex. Socket Head Screw	M10X100L	2	for "HM"
96	121007	Idler Wheel		1	
97	HW106	Spring Washer	M10	2	
98	HS259	Hex. Socket Head Screw	M10X25L	2	
99	HN108	Nut	M20XP1(AN04)	1	
100	121077	Blade	208.5X20X0.9X5/8T	1	
101	121006	Drive Wheel		1	
102	198036	Drive Shaft Washer		1	
103	HS059	Hex. Head Screw	M10X25L	1	
104	121030	Blade Back Cover		1	
105	198169M	Plum Screw	M6x13L	4	
106	HW104	Washer	M6	4	
106-1	198189	Ring		1	
111	HT002	Round Head Screw	M5X15L	2	
112	HW003	Washer	M5	2	
114	HT019	Round Head Screw	M5X12L	1	
115	198079PA	Label		1	
116	198074GA	SS41		1	
117	HT005	Round Head Screw	M5x15L	2	
161	121062	Scale		1	
162	HH001	Rivet	§ 2X5	2	
165S	121059NS	Distance Set Rod A'ss		1	
165-1	198057	Distance Set Bracket		1	
165-2	HW005	Washer	M8	2	
165-3	198088	Grip		2	
165-4	198058	Adjust Bar		1	
165-5	121059N	Distance Set Rod		1	
165-6	HN010	Hex. Nut	M14xP1.5	1	
165-7	198087	Ruler		1	
165-8	HH001	Rivet	§ 2	4	
170	121052A	Wheel		1	
171	HP021	Pin	§ 5X35	1	
172	121039	Bearing Cover		1	
173	CA3047	Bearing	§ 30X § 47X3.5	1	
174	198009	Vise Handle		1	
175	198040	Spring		1	
176	121049	Bushing		1	
178	HW016	Washer	§ 6.5 * § 18-1.5	1	

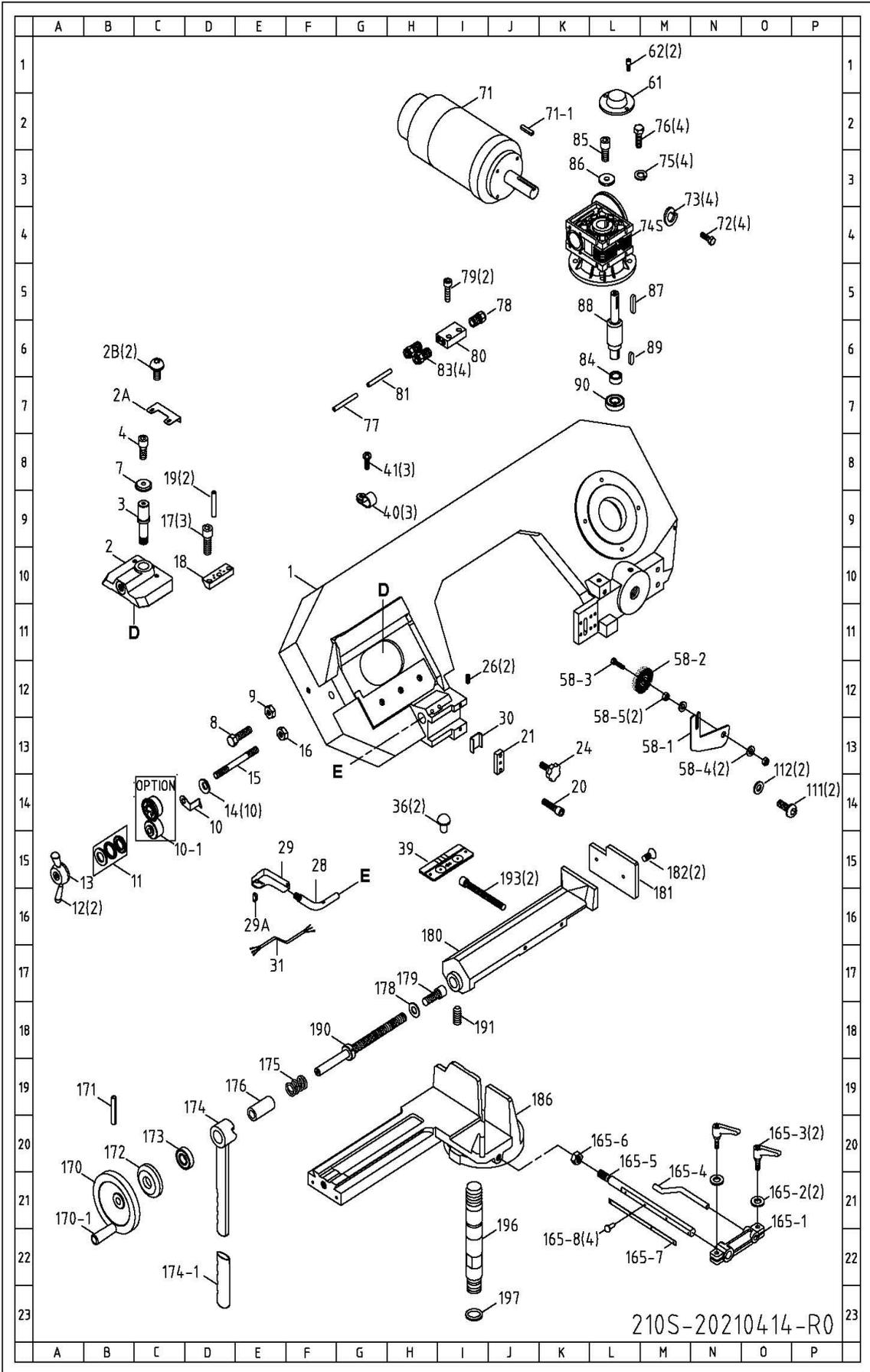
CODE NO	PART NO	DESCRIPTION	SPECIFICATION	QTY	NOTE
179	HS229	Hex. Socket Head Screw	M6x15L	1	
180	121004	Vise Jaw Bracket		1	
181	121022	Vise		1	
182	HD501	Hex. Socket Flat Head Scvew	M6X12L	2	
186	121003	Vise Jaw Bracket		1	
190	121025	Leadscrew A		1	
191	HS432	Hex. Socker Headless Screw	M8X20L	1	
193	HS326	Hex. Socket Head Screw	M6X100L	2	
194	121002	Swivel Arm		1	
195	HN006	Hex. Nut	M10	2	
196	121043	Vise Jaw Adjustable Rod		1	
197	HO0031	O-Retainer Ring	§ 19.8X § 2.4	1	
198	HS063	Hex. Head Screw	M10X45L	2	
200	121029	Bushing		1	
201	HN105	Nut	AN06	1	
202	198046	Bolt		1	for "HB"
202	198046	Bolt		2	for "HM"
202-1	HN006	Hex. Nut	M10-P1.5	2	for "HM"
202-1	HN006	Hex. Nut	M10-P1.5	1	for "HB"
204	HS229	Hex. Socket Head Screw	M6x15L	2	
205	HW104	Spring Washer	M6	2	
206	121097M	Cover		1	
209	198071G	Control Box Base		1	
209-1	103143	Value		1	
209-2	103124A	Throttle Valve		1	
209-4	HT001	Round Head Screw	M5X10L	6	
211	HS228	Hex. Socket Head Screw	M6X12L	4	
212	HW104	Spring Washer	M6	4	
214	198071GV	Lable for Name Plate		1	
215S		Control Box Assembly		1.00	
215-1	121071	Support base		1	
215-2	121072B	Rotating seat		1	
215-4	121074A	Electric control box		1	
215-5	121075A	Electric control box cover		1	
215-6	121076A	Electric control board		1	
215-7	198088	clamping knobs		1	
215-8	MHS241Z	Hex. Socket Head Screw	M8X12L	4	
215-10	MHI305	Washer	M8	4	
215-11	MHT041Z	Hexagon socket head screw		10	
215-12	MHS349	Hex. Socket Head Screw	M8X15L	4	
215-13	PJNB212339E02	Operation panel		1	
216	HB605	Hex Socket Plug	3/8"PT	1	
216-1	198191	Washer	15*22-2.2	1	
217	121067M	Oil level gage		1	
217-1	198190	Washer	19.5*26-2.2	1	
218	HO042	O-Retainer Ring	ID170X5.7W	1	

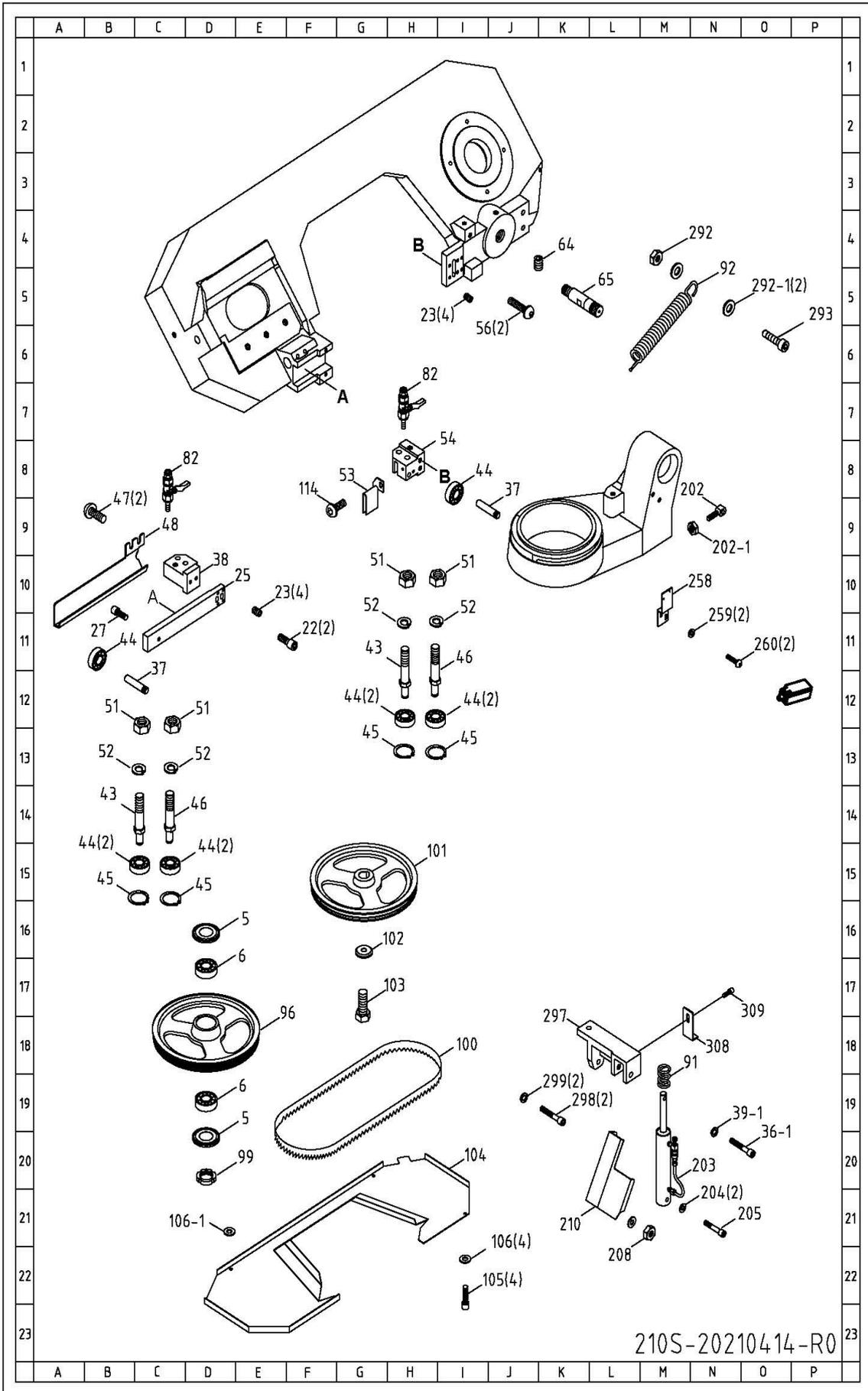
CODE NO	PART NO	DESCRIPTION	SPECIFICATION	QTY	NOTE
219	HW106	Spring Washer	M10	6	
220	HS230	Hex. Socket Head Screw	M10X20L	6	
221	121001TA	Stand		1	
221-1	121001P	Swivel Arm Base		1	
222	121031	Filter		1	
223	HS509	Cross Round Head Screw	M4X8L	2	
224	HS064	Hex. Head Screw	M10X50L	2	
225	HN006	Hex. Nut	M10	2	
227	HS059	Hex. Head Screw	M10X25L	2	
228	HW106	Spring Washer	M10	2	
229	121041	Fixed Plate		1	
230	HT003	Round Head Screw	M6X10L	4	
231	HS261	Hex. Socket Head Screw	M10X35L	1	
232	198038	Nut		1	
233	198010	Adjustable Handle		1	
234	HW006	Washer	M10	4	
235	HS258	Hex. Socket Head Screw	M10X20L	4	
240S	MGL2066-A	Cooling Pump Assembly	1/8HP,1相,230V,60Hz	1	
241	HS229	Hex. Socket Head Screw	M6-1.0Px15L	2	
242	HW104	Spring Washer	M6	2	
243	HD608	Micro Control Block	3/8"x3/8"	1	
245	HD804	PU Tube	φ 8x1300L	1	
248	198073T	Fluid Collected Plate		1	
249	121054M	Feed Support		1	
250S	121001FM	Stand Leg Set		1	
250-1	121001FMA	Stand Leg (front)		2	
250-2	121001FMB	Stand Leg(Right)(Left)		2	
253	HS046	Hex. Head Screw	M8x20L	12	
254	HW005	Washer	M8	24	
255	HN005	Hex. Nut	M8	12	
282	1965052	Knob		1	
283	HS241	Hex. Socket Head Screw	M8X15L	2	
298	HS264	Hex. Socket Head Screw	M10X50L	1	for "HB"
298-1	HW006	Washer	M10X20Xt2	2	for "HB"
298-2	HN006	Hex. Nut	M10	1	for "HB"
300	198065A	Cylinder Assembly		1	for "HB"
301	HS325	Hex. Socket Head Screw	M10X115L	1	for "HB"
304	HS229	Hex. Socket Head Screw	M6x15L	2	
305	HW104	Spring Washer	M6	2	
306	HW004	Washer	M6	2	
307	HN004	Hex.Nut	M6	2	
323	HS212	Hex. Socket Head Screw	M4X30L	2	for "HB"
323-1	HW002	Washer	4.5*10-0.8t (M4)	2	for "HB"
323-2	HN002	Hex. Nut	M4	2	for "HB"
324	121069MY	Cylinder Lower Support		1	for "HB"
324-1	HW106	Spring Washer	M10	2	for "HB"

CODE NO	PART NO	DESCRIPTION	SPECIFICATION	QTY	NOTE
324-2	HS259	Hex. Socket Head Screw	M10X25L	2	for "HB"
323	HS212	Hex. Socket Head Screw	M4X30L	2	for "HB"

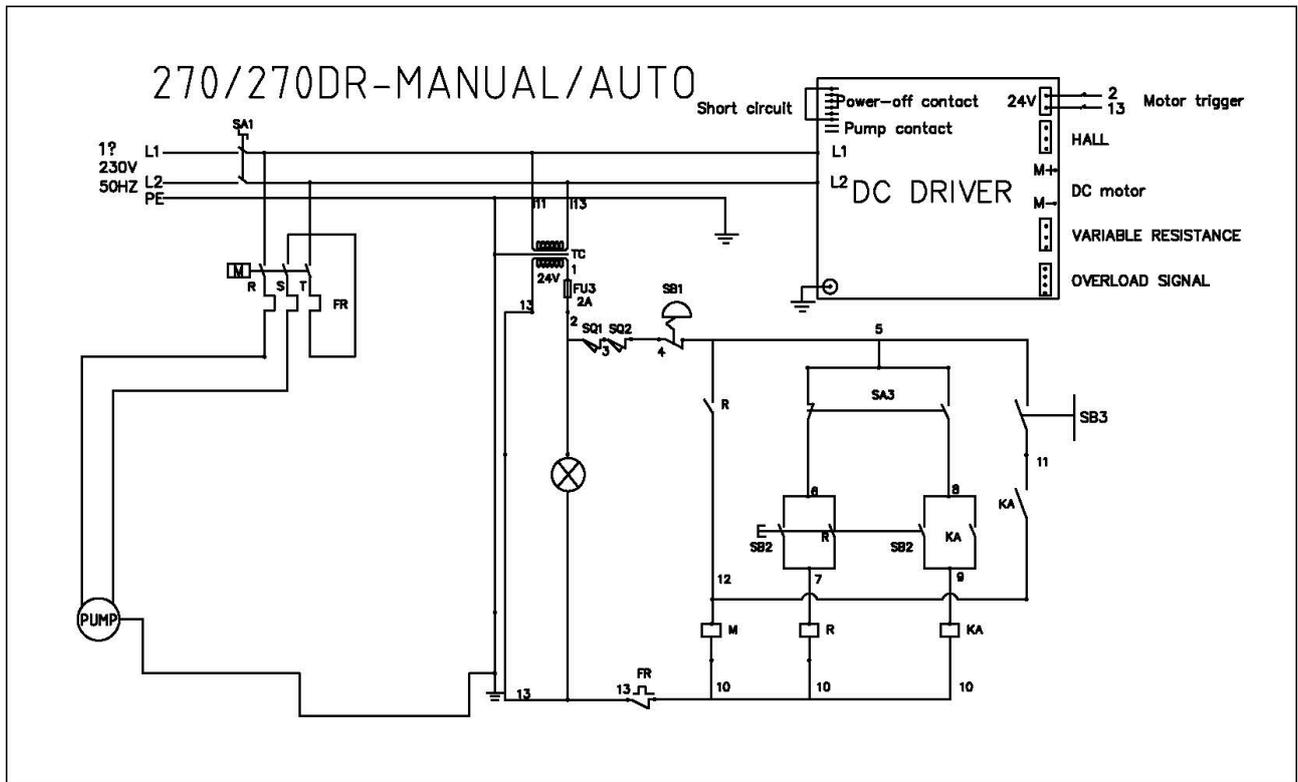


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11. CIRCUIT DIAGRAM



Parts umber	Item.	Designation and function	Technical data	QTY
MET119K	M1	Contactor		1
MET1844	FU1	Fuse base		1
MET1820	FUSE	FU1-2A		1
MET1321-2	TC	Transformer	CE20VA G,0,230V/400V,0,24V	1
MET1415	L	Power light		1
MET2007	FR	Over Load For 270	2.5A----4A	1
MET1222-1	SA3	Hand-Auto Switch		1
MET1715-2	SA1	Power switch		1
MET2057	SA2	0.25-0.4A		1
MET1245	SB1	Emergency stop button	HY-57B	1
MET1218-1	SB2	Satrt Switch		1
MET1127	KA	Relay		2
MET1623	SQ1	Cover Limit switch		1
MET1244	SB3	Push Limit Switch		1
MET1426	SQ2	OVERLOAD SIGNAL		1
MET1621	SQ3	Lower Limit Switch		1
MET1285	M1	Auxiliary contact		1

12. GUARANTEE

If within 2 years of purchase this machine supplied by TOOL FRANCE becomes defective due to faulty materials or workmanship we guarantee to repair or replace the machine or defective part or parts free of charge provided that:

1. The product is returned complete to one of our Service Branches or Official Service Agents.
2. The product has not been misused or carelessly handled and in particular has not been used in a manner contrary to the operating instructions.
3. Repairs have not been made or attempted by other than our own Service Staff or the staff of our Official Service Agents.
4. Documentary proof of purchase date is produced when the goods are handed in or sent for repair.
5. Wear parts are not covered by the warranty