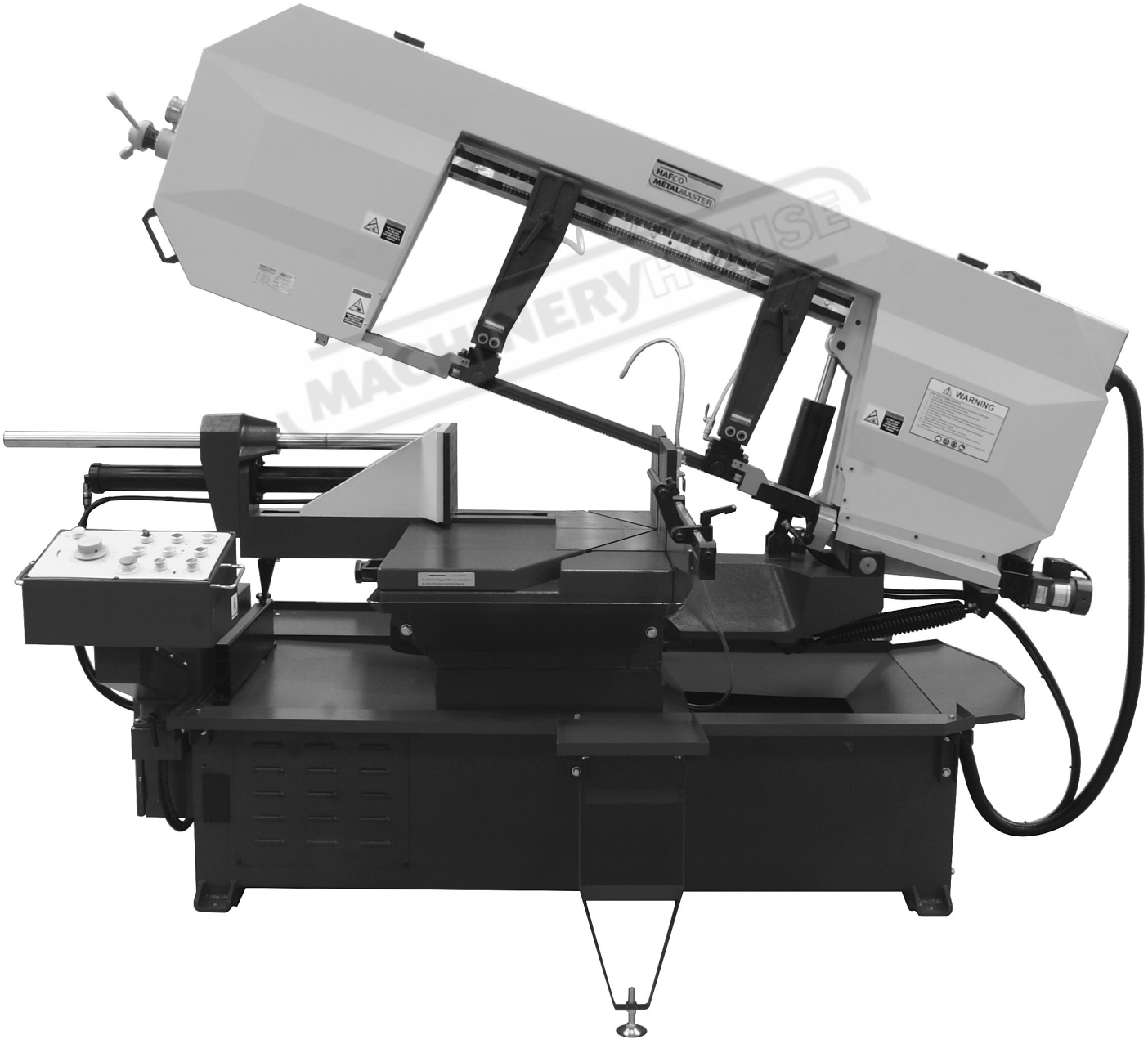
INSTRUCTION MANUAL

BS-461AS
Dual Mitre, Swivel Head Metal Cutting Band Saw (415V)
600 x 440mm (W x H) Rectangle



B035A

UE-460DSAE

HORIZONTAL BAND SAW

Study Carefully Before Operating

Specifications

Capacity:			
90°	460mm	460x460mm	440x600mm
45°	445mm	445x445mm	
60°	295mm	295x295mm	

Blade Size
41 x 1.3 x 5330mm (1.61" x 0.05" x 209.84")

Blade Speed
50Hz 26~80MPM (82~264FPM) 60Hz 32~96MPM (106~317FPM)

Motor
5HP (3.7kW) 4P

Packing Measurement
2810mm x 1130mm x 1870mm
(110.6" x 44.5" x 73.7")

NW: 1320kgs (2904lbs) **GW:** 1500kgs (3300lbs)

8/2012

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1 ACCIDENT PREVENTION AND SAFETY REGULATION

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

1.1 Advice for the operator

- Check, the line voltage is the same as the voltage required by the machine's motor.
- Check the efficiency of your electric supply and grounding system; connect the power cable of the machine to the socket and the ground lead (yellow- green in color) to the grounding system.
- When the machine is in suspended mode (or stopped) the blade must not move.
- Only the blade section used for cutting must be kept unprotected. To remove guards to expose more of the cutting blade adjust the blade guides.
- It is forbidden to use the machine without its shields
- 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.
- 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 like: shirts 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 miscellaneous object; i.e. equipment, tools, etc…
- Perform only one operation at a time. Never have several objects in your hands at the same time. Keep your hands as clean as possible.
- All internal operations, maintenance or repairs, must be performed in a well-lit area or where there is sufficient light from extra sources to avoid the risk of accidents.

1.2 The electrical equipment according to European Standard" CENELEC EN 60204-1"

- The electrical equipment ensures protection against electric shock as a result of direct or indirect contact. The active parts of this equipment are housed in a box to which access is limited by screws that can only be removed with a special tool; the parts are fed with alternating current as low voltage (110V). 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 grounding; in the event of a 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

1.3 Warning labels

Replace warning labels if they become obscured or removed.

- Keep hands and other body parts away from a running blade.
- Do not open the blade cover while machine is running.
- Do not store combustible materials near or around machine.
- Always wear approved safety glasses/face shields while using this machine.
- Keep machine guards in place at all times.
- Do not wear gloves.
- Remove loose clothing and confine long hair.
- Keep the work area clean and free miscellaneous objects.

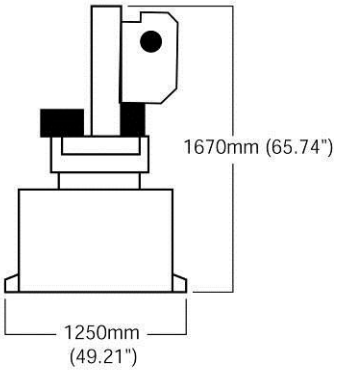
1.4 Emergencies according to European Standard "CENELEC EN 60204-1"

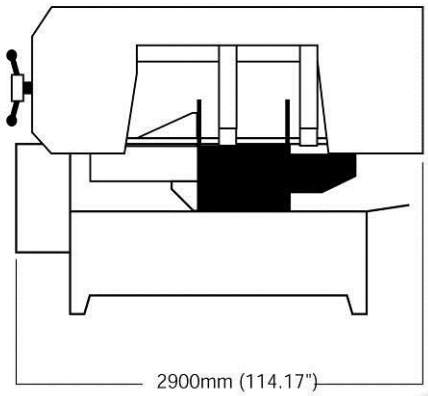
- In the event of incorrect operation or a danger condition, the machine may be stopped immediately by pressing the red mushroom shaped button.

NOTE: Resetting of machine operation after each emergency stop requires resetting the emergency stop button.

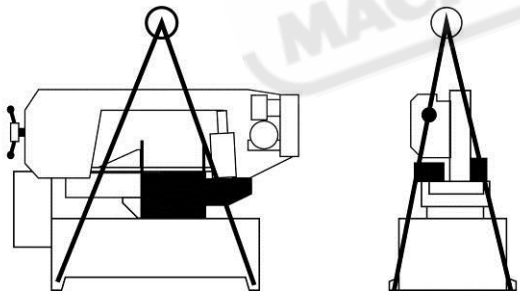
2 MACHINE TRANSPORTATION AND INSTALLATION

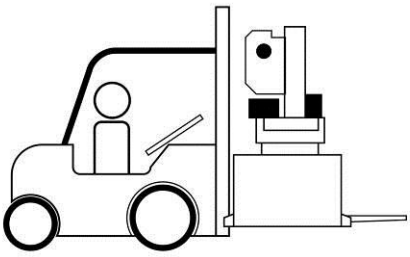
2.1 Machine dimensions





2.2 Transporting the machine





Unpack your machine carefully, and use a crane or forklift to set it in position. If a crane is used to lift the machine, attach the lifting cable carefully to the machine. Sufficient space should be left around the machine to allow safe handling of materials, inspection, and maintenance operations. Take precautions to choose a location that will keep the machine free of vibration and dust caused by other machinery.

2.3 Minimum requirements for housing the machine

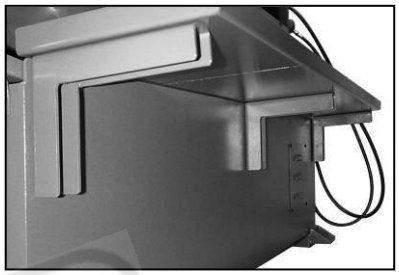
- Main voltage and frequency must comply with the machine's motor requirements.
- Environment temperature should fall within (-10ºC to + 50 ºC).
- Relative humidity cannot be over 90%.

2.4 Installing the rear coolant return tray

The rear coolant-return tray must be installed after the machine is set in place. Install the coolant return trays first.

Installing three channeled L-bracket

Install three channeled L-bracket to the back of the machine stand. Attaching the brackets requires 6 hex head bolt, 6 spring washers, 6 washers, and 6 nuts.

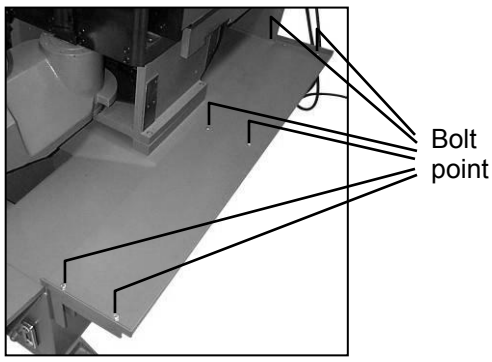


- Place a spring washer and washer on each hex head bolt.
- Face the long side of the bracket up.
- Align the holes of short side of the bracket to the machine panel's holes.
- Place the 2 hex head bolts and their washers through each bracket and machine panel.
- Use a nut on the inside of the machine stand to secure each hex head bolt.

NOTE: Short bracket on the left side

securing the rear tray

Attaching the trays requires 6 hex head bolt, 6 spring washers, 6 washers, and 6 nuts.

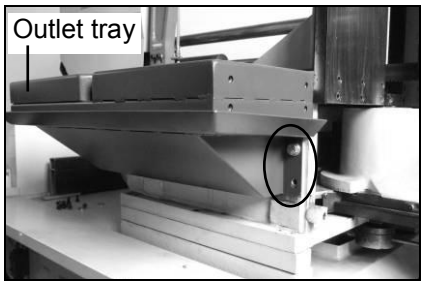


- Arrange the tray rims to facing up and away from the machine.
- Place the rear return tray onto brackets at the back of the machine.
- Align the holes of the rear tray and the six-channeled L-brackets.
- Place 6 hex head bolts through the holes of the trays and brackets.
- Secure each hex head bolts with a washer, spring washer, and hex nut.

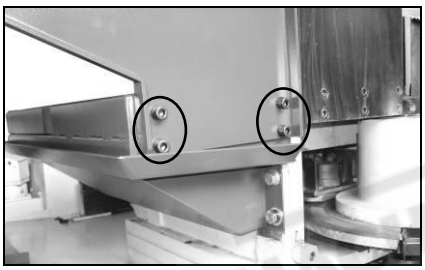
2.5 Install the outlet tray, length stop device and mobile coolant trays.

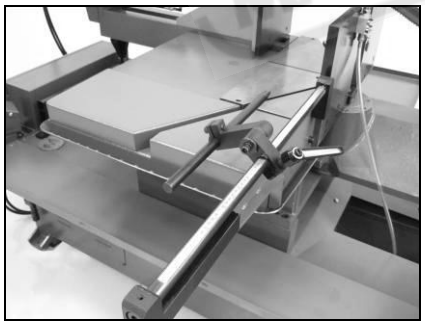
Install the outlet tray and stop bar on to the machine after setting up the machine already as below steps:

1. Assemble the new outlet tray on to the machine by screw in the four screws on the both side as picture. Tighten the four screws after make sure the top of outlet surface same as table.

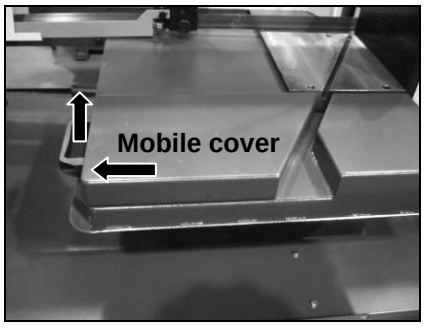


2. Install stop device on to the outlet tray at the right side by tighten four screws.

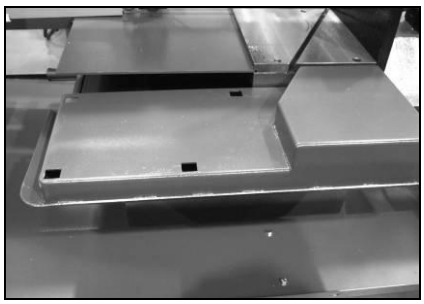




3. If miter cutting on the front way or move the vise to this side for another way miter cutting, the movable cover on the left side can be removed by pull handle up and out as arrow direction to remove it from being cut.



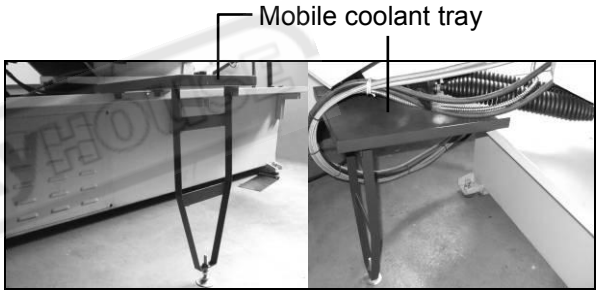
Remove mobile cover by lift handle up and pull it out from the base as showing direction.



There are four slots on the cover base after removing the mobile cover for this way miter cutting.

Install the mobile cover to the four slots and push it to the right side to secure it.

4. They are two mobile coolant trays can be moved and used in miter cutting on front and rear side to prevent coolant spray on to the floor.



2.6 Securing to foundation

Position the machine on a flat and level foundation of reinforced concrete. Level machine and anchor it to the foundation with anchor bolts. Maintain a minimum distance of 800mm from the rear of the machine to the wall. Position the anchors using screws and expansion plugs or tie rods sunk in cement.

2.7 Leveling the machine

The operating accuracy of all precision machinery depends on the accuracy of the installation of the machine. Manufacturing tolerance of the machine can only be guaranteed if the machine is firmly and properly installed. Once the machine is lowered on the prepared foundation, machinist levels should be used alternately on the vice slide plates and work feed table, adjust the left to right and front to back level of the machine with leveling bolts.

- When leveling left to right level, adjust left side to be approximately 3mm higher than the level of the right side. This will provide proper return of the cutting fluid. After proper leveling of the machine, use anchor bolts to secure to the foundation.

Caution: All leveling bolts should support the weight the machine evenly

2.8 Deactivation of machine

If the machine is to be out of use for a long period, it is advisable to proceed as follows:
1) Disconnect from the power supply
2) Loosen the tension on the blade
3) Release the bow return spring
4) Empty the coolant tank
5) Carefully clean and grease the machine
6) If necessary, cover the machine.

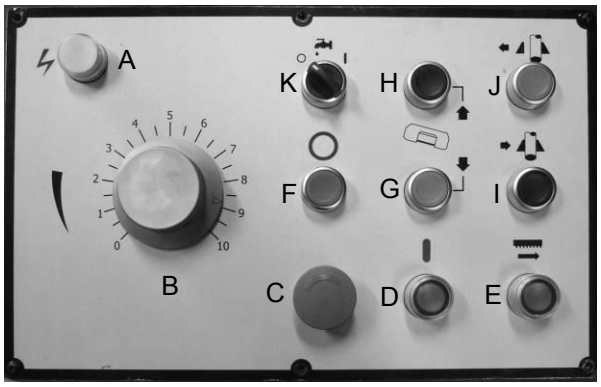
Dismantling (due to deterioration and/or obsolescence)
As a General Rule,
If the machine is to be permanently demolished and/or scrapped, divide the material to be disposed of according to type and composition, as follows:

1) Cast iron or ferrous materials, composed of metal alone, are secondary raw materials, so they may be taken to an iron foundry for re-smelting after having removed the contents (classified in point 3).
2) Electrical components, including the cable and electronic material (magnetic cards, etc.), fall within the category of material classified as being assimilated to urban waste according to the laws of your local, state, or federal government, 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 considered hazardous or special refuse, so they must be collected, transported and disposed of at a special waste disposal service.

NOTE: The standards and legislation concerning refuse is in a constant state of evolution, therefore is subject to changes. The user must keep informed of the regulations at the time of disposal as these may differ from those described above.

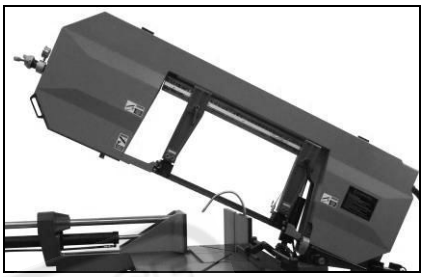
3 DESCRIPTION OF MACHINE PARTS

3.1 Control panel



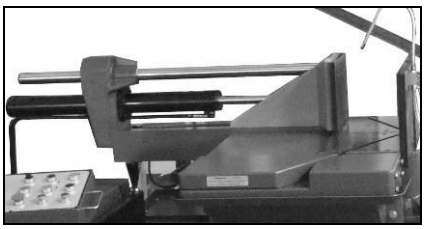
A. Main power indicator light – indicates that main power is active.
B. Hydraulic flow control valve: turn clockwise to increase bow down rate, counter clock wise to decrease the cutting rate.
C. Emergency Stop Button – Press to stop all machine functions.
D. Hydraulic start switch – actives hydraulic power.
E. Start Blade – press to start cutting cycle-blade start and descend the saw bow.
NOTE: before blade starting, press vise close button (3.1 I) to clamp work piece well.
F. Stop cutting - Press to stop cutting cycle.
G: Bow Down Button - Press to descend the saw bow.
H. Bow Up Button – Press to raise the saw bow.
I. Vise close Button – press to close the vise.
J. Vise open Button – press to open the vise.
K. Coolant start switch – Turn right to activate or turn left to stop coolant flow.

3.2 The saw bow



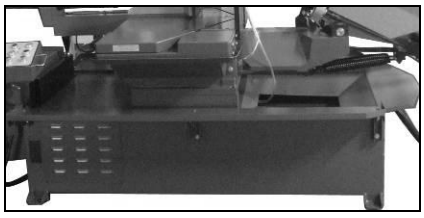
Machine parts consisting of drive members (gear motor, variable speed motor, and flywheels), tightening and guide (blade tightening slide, blade guide blocks) of tool.

3.3 The vise system



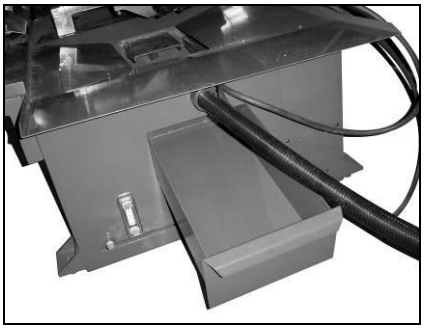
A hydraulic vise is used for clamping work material. Each of the vises has a miter slot, which is good for the right or left side's angle cutting to 60°.

3.4 The base



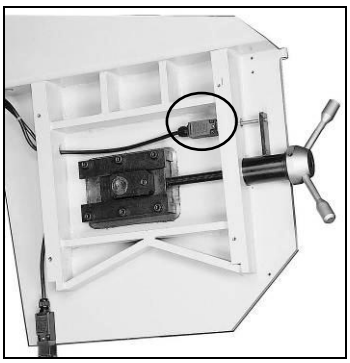
The base is the structure supporting the saw bow (the bow pivot point and respective blocking system), the vises, and containing chip tray and coolant system.

3.5 Chip tray



Removable chip tray for capture of chips and debris.

3.6 Blade broken micro switch

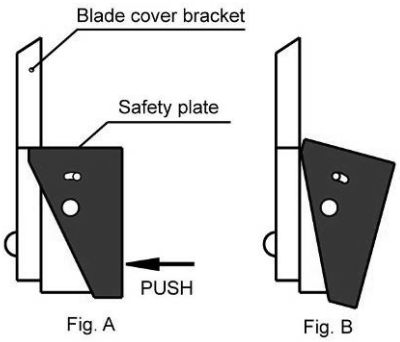


This machine is equipped with automatic power shut-off safety device to prevent any further damage when a blade has been broken. There is a reduction in tension when an adjustment bolt actuates micro switch's plunger. To keep the micro switch in proper contact with the blade's tension. An adjustment of the actuator bolt is required.

3.7 Chip brush

This model has a powered chip brush driven by an axle transfer from the drive motor. The chip brush is designed to clean the blade thus prolonging the life of the blade.

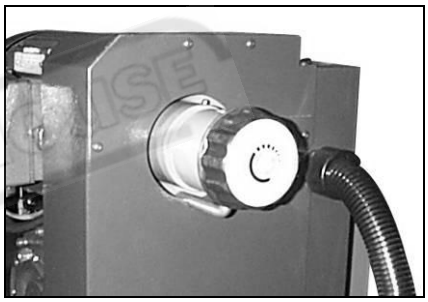
3.8 Open Blade Cover Safety Device



When blade cover is open, close the blade cover as instructed below:

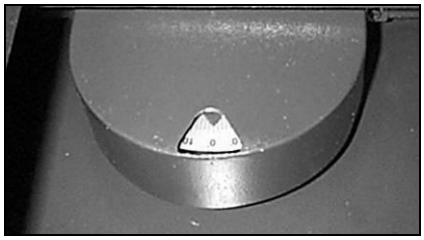
1. Use one hand on the cover handle to hold the blade cover.
2. Use the other hand to push in the safety plate (Fig. A), so the bracket will release (Fig. B).
3. Lower the cover down slowly and carefully.

3.9 Speed change dial



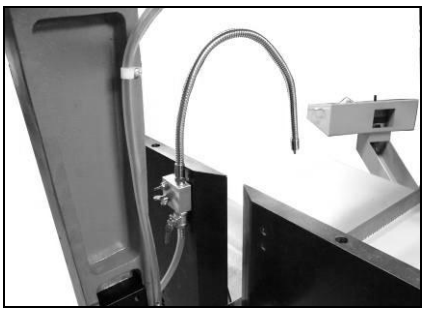
The speed change dial adjusts the variable speed transmission in blade speed. Change only while blade is moving.
This machine has a variable speed transmission using a variable pulley - system. The speed is changed by rotating the speed changer dial to adjust the width of the pulley discs. When compressed, the pulley discs cause the belt to ride the outer edge of pulley discs and changing the speed. The speed must be changed while belt is moving.

3.10 Blade angle scale



The scale indicates the cutting angle of the blade. The scale has preset stops at every 15°.

3.11 Attached coolant device

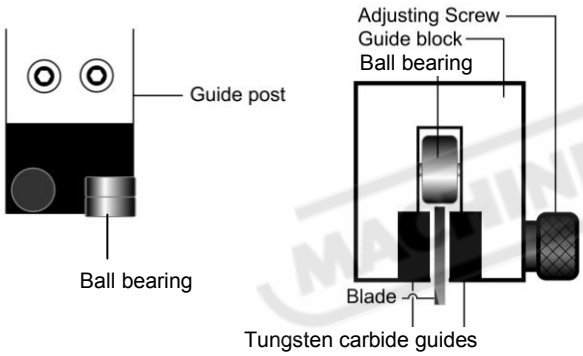


An attached coolant device that is screwed on the front vise jaw for supply enough coolant to the cutting material. This device can be unscrewed, and move to the rear vise jaw for easy both side miter cutting.

4 SET UP AND PRE-OPERATIONS

4.1 Adjusting the tungsten carbide guides

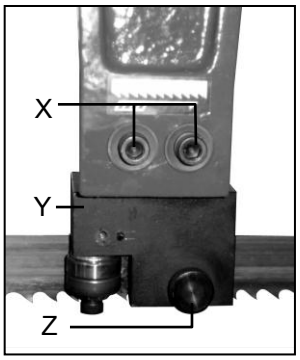
The blade is guided by the upper ball bearings, side ball bearings, and tungsten carbide guides.



- When ready to cut the work piece, the carbide guide must be adjusted by adjusting the screws to properly compressed blade. The tungsten carbide blades should touch, but not pinch the blade.
- For moving the blade guide posts or changing blade, the tungsten carbide guides should be released by using the adjusting screw.

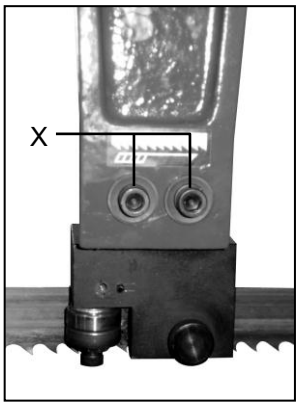
In case the blade needs to be replaced, make sure to always install 1.3mm thick blade.

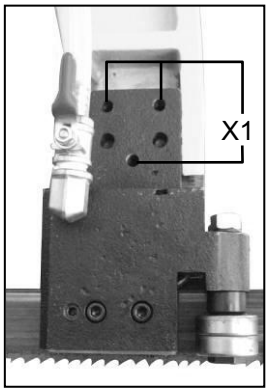
4.2 Thrust Roller Adjustment



1. Disconnect machine from the power source.
2. Loosen two hex socket cap screws (X)
3. Move guide seat (Y) up or down until a clearance of .003" to .005" between back of blade and thrust roller is obtained.
4. Tighten two hex socket cap screws (X).
5. Repeat for other blade guide assembly.
6. Connect machine to the power source.

4.3 Adjusting the cutting precision





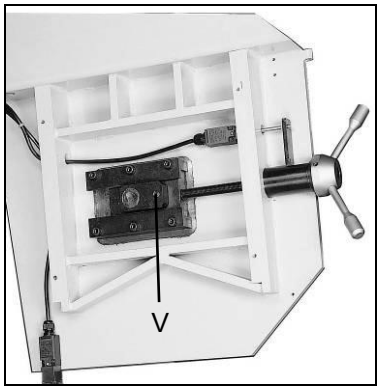
The cutting precision has been set at the factory. This adjustment should only be accomplished by a qualified personnel that are familiar with this type of adjustment.

- Disconnect the machine from power supply.
- Loosen the adjusting bolts (X) slightly, if needed.
- Use the setscrews (X1) to adjust the direction of the guide blocks.
- After adjusting, tighten the adjusting bolts (X).

4.4 Blade tracking adjustment (Manual blade tension type)

> ⚠ Caution
>
> **Before blade tracking adjustment, make vise clamped and hydraulic flow control valve to zero. Failure to comply may result in injury!**

This adjustment must be accomplished by qualified personnel that are familiar with this type of adjustment and the dangers associated with it.

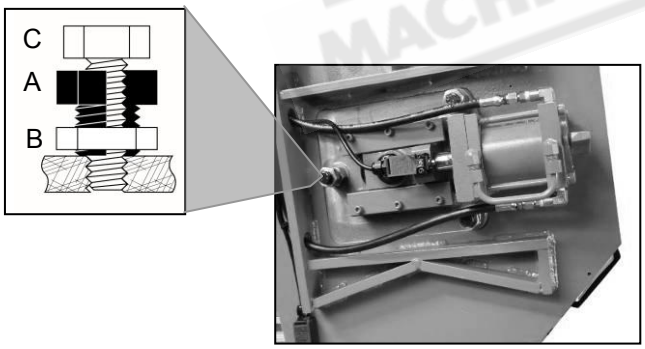


Blade tracking has been set at the factory and has no adjustment required. If a tracking problem occurs, adjust the machine as follows:
- Raise saw arm to the proper position.
- Locate tracking adjustment screw (V) on the front of the saw blade, flywheel side.
- Reduce the blade tension a little.
- Turn the tracking adjustment screw (V) to adjust the saw blade ride.
- Re-tension the blade tension.
- Connect the machine power to run the blade for 1-2 minutes. Then stop the machine operation.
- Remove the blade guides and open covers to check the blade tracking
- Close covers, replace the blade guides and tighten the setscrews.
- If necessary, readjust it again.

4.5 Blade tracking adjustment (Hydraulic blade tension type) (optional)

> ⚠ Caution
>
> **Before blade tracking adjustment, make vise clamped and hydraulic flow control valve to zero. Failure to comply may result in injury!**

This adjustment must be accomplished by qualified personnel that are familiar with this type of adjustment and the dangers associated with it.

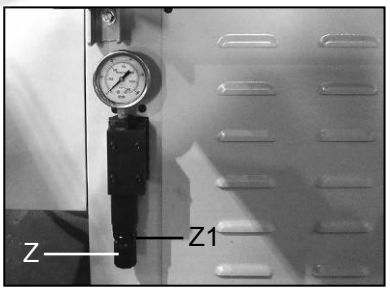


The blade tracking has been set by factory and should not require any adjustment. If a tracking problem occurred, adjust the machine as follows:
- Raise saw arm to a usable height.
- Disconnect the machine from the power source.
- Locate tracking adjustment bolt on the backside of the saw bow behind the flywheel.
- Loosen hex cap screw C, located on the top of the track-adjusting bolt A and tracking nut B .
- Either raising or lowering track-adjusting bolt A accomplishes track adjusting.
- Tracking is set properly when the back of the blade lightly touches the wheel flange. Note: over tracking (allowing blade back to rub hard against wheel flange) will damage the blade wheels and blade.
- Tighten hex cap screw C and tracking nut B.
- Connect machine to the power source.

4.6 Placing the saw blade onto the drive wheel and flywheel
- Disconnect from power supply
- Remove the blade guards
- Turn the blade tension handle counter-clockwise, to fully loosen the flywheel.
- Open the blade cover and place the saw blade onto the race of the drive wheel and flywheel.

*Check the cutting direction of the saw blade.
- Insert the saw blade into the rollers of the left and right blade guide.
- The back edge of the saw blade should make contact with the flange of the drive and flywheel; turn clockwise the blade tension handle to tighten the saw blade, until the blade is properly tensioned.
- Replace the blade guards.
- Use the blade running switch 3.1 E to check the proper ride of the blade.

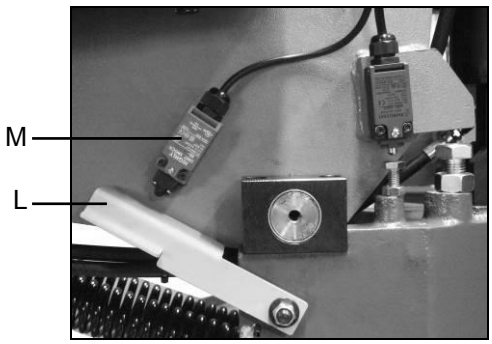
4.7 Hydraulic vise pressure (optional)
The hydraulic vise pressure can be monitored and adjusted by a pressure gauge on the base of the machine. The normal pressure is set at 35kgs/cm^2. This is good for most solid firm materials. For softer, hollow, or pipe materials reduce the pressure to over 25kgs/cm^2. Other materials may require different clamping force. The clamping pressure may be adjusted by a knob at the base of the pressure gauge assembly.



- Start by pressing the vise close switch (3.1 I) continuously in manual mode to have the vise clamp onto a work piece.
- Next, unlock the fluted knob (Z) by releasing fluted lock nut (Z1).
- Turn the fluted knob (Z) counterclockwise to decrease the pressure, clockwise to increase the vise pressure.
- Lock the fluted nut (Z1) after adjustment.

5 OPERATION PREPARATIONS

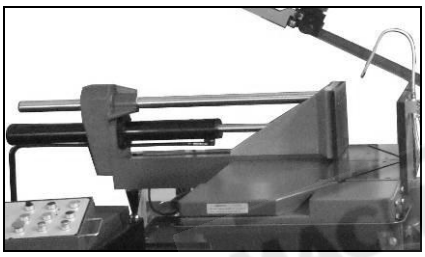
5.1 Setting the saw blade height



Start the hydraulic power and Arise saw bow to the properly height. Adjust contactor (L) to touch upper limited saw bow height micro switch (M) manually.

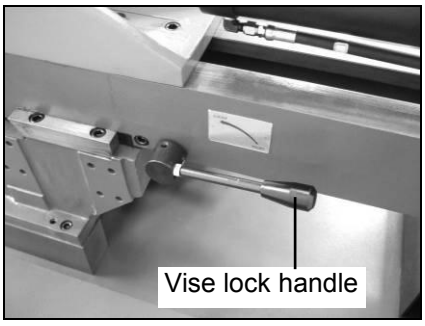
5.2 Positioning the vise

When cutting angles, the relocation of the vise is necessary to prevent the blade from cutting the hydraulic vise.



Adjusting the hydraulic vise for angle cutting

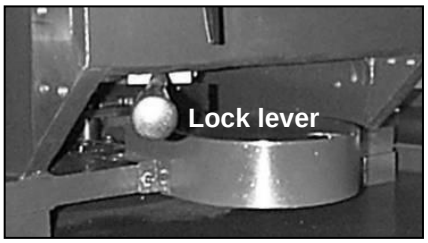
.- The saw bow must be raised to clear the vise.

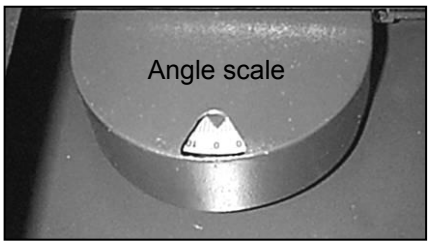


- Unlock the hydraulic vise lock handle.
- Push the hydraulic vise toward other side.
- Visually check clearance of the blade and saw bow against the hydraulic vise. Readjust the position if necessary.
- Lock the hydraulic vise in position using its lock handle.

5.3 Angle cutting

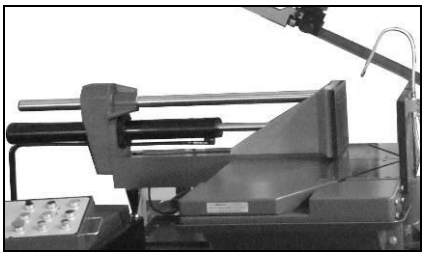
The machine can cut angles up to 60° in both directions





- Check that the saw bow is raised to clear the vise fixed vise jaw.
- Turn off power.
- Unlock the saw bow by using the lock lever under the machine bench.
- Rotate the saw bow to the desired cutting angle. Refer to the scale to determine the proper angle.
- Lock the cutting angle in place by using the lock lever.
- Next, adjust the location of the vise to avoid contact with the blade.

5.4 Using the vise



The hydraulic vise operates automatically and can be controlled using the control panel. Use the vise open button 3.1 J and vise close button 3.1 I to open and close the vise. Power must be active. Hydraulics must be active.

5.5 Adjusting the blade speed

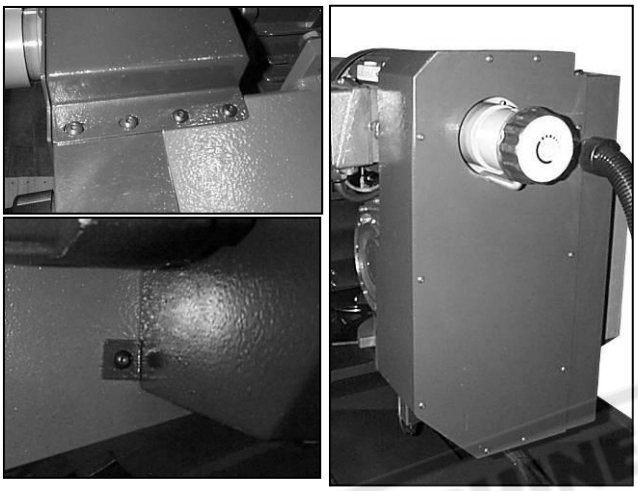
*Blade speed must be changed while belt and blade are moving.

- Check that the machine is running and blade is moving.
- Rotate the speed change dial 3.9 and check the speed scale for desired speed. Turn the dial counter clockwise to raise blade speed, and turn the dial clockwise to reduce blade speed. The speeds available are 32~96MPM (106~317FPM). If need to know real blade

speed, it needs to measure with blade speed meter.

5.6 Changing the transmission belt

Over time and due to normal wear and tear the pulley belt will need to be changed.



- Disconnect the machine from power supply.
- Open the belt cover. Remove 4 screws from the top. Remove 1 screw from the front. Remove 8 screws from the cover.
- Turn the dial counter-clockwise to open the pulley discs and loosen the belt.
- Replace the belt.
- Turn the dial to pretension the belt.

5.7 Changing the blade (Manual blade tension type)

⚠ WARNING

Disconnect the machine from the power source before making any adjustments or repairs! Failure to comply may result in serious injury!

- Raise the saw bow approximately 6" in height.
- Disconnect the machine from the power source.
- Remove both blade guides from the blade guide blocks and cover.
- Loosen the cover's lock screws and open the covers.
- Take off the chip brush device by loosen it's screws.
- Loosen left blade guide arm's lock handles and slides it to the right side as far as possible.
- Release blade tension by turning the blade tensioning handle counter-clockwise until blade is free.
- Remove the old blade from both wheels and out of each blade guide.

⚠ Caution: Even dull blades are sharp to the skin! Use extra caution handling band saw blades!

- Position the blade and making sure that the teeth are pointed downward in the cutting direction.
- Position the blade on the wheels. Make sure back of the blade rests lightly against the wheel flange of the both wheels. Twist blade slightly to allow it to slip into guides.
- Tension the blade to the tension indicator shown line 460DSA. Replace the chip brush device so that it touches the blade and tighten setscrew.

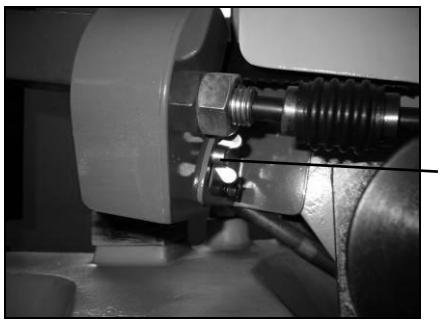
- Close all covers and guards and fasten securely. Connect machine to power and run the blade freely for 1-2 minutes.
- Turn the power off and recheck the blade tension and chip brush. If further adjustment is necessary disconnect the saw from the power source, make adjustments, and re-connect the power.

5.8 Changing the blade (Hydraulic blade tension type) (optional)

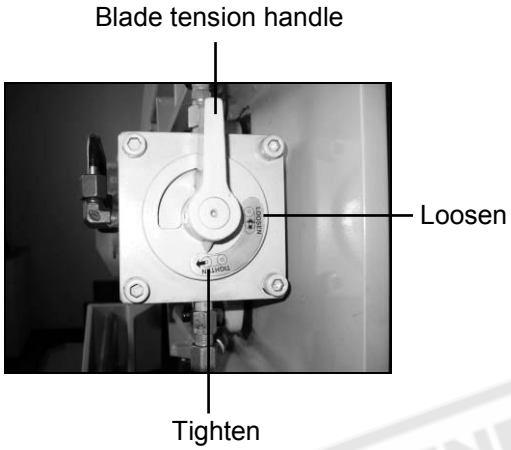
⚠ WARNING

Disconnect the machine from the power source before making any adjustments or repairs! Failure to comply may result in serious injury!

- Raise the saw bow approximately 6" in height.
- Disconnect the machine from the power source.
- Remove both blade guides from the blade guide blocks and cover.
- Loosen the cover's lock screws and open the covers.
- Lower the chip brush device away from the blade by loosen the wing nut.



- Loosen left blade guide arm's lock handles and slides it to the right side as far as possible.
- Release blade tension by turning the blade tension handle counter-clockwise to the loosen position that blade will free.



- Remove the old blade from both wheels and out of each blade guide.

⚠ Caution: Even dull blades are sharp to the skin! Use extra caution handling band saw blades!

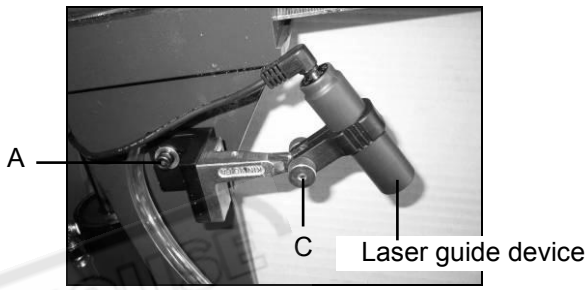
- Position the blade and making sure that the teeth are pointed downward in the cutting direction.
- Position the blade on the wheels. Twist blade slightly to allow it to slip into guides.
- Turn the blade tension handle to the tighten direction a little bit and check the blade to make sure back of the blade rests lightly against the wheel flange of the both wheels.
- Turn the blade tension handle to the Tighten position to tension the blade by the tension cylinder automatically.
- Replace the chip brush device so that it touches the blade and tighten setscrew.
- Close all covers and guards and fasten securely. Connect machine to power and run the blade freely for 1-2 minutes.
- Turn the power off and recheck the blade tension and chip brush. If further adjustment is necessary disconnect the saw from the power.
- Close all covers and guards and fasten securely. Connect machine to power and run the blade freely for 1-2 minutes.
- Turn the power off and recheck the blade tension and chip brush. If further adjustment is necessary disconnect the saw from the power source, make adjustments, and re-connect the power.

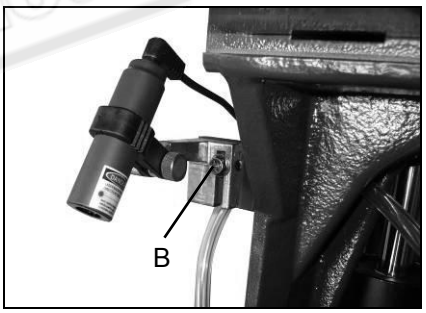
5.9 Laser guide device (optional)

The laser guide has been set correctly before shipment. The laser guide - line works when machine power on, the red line will align and close with the blade.

if any situations have to readjust Laser device, see below pictures.

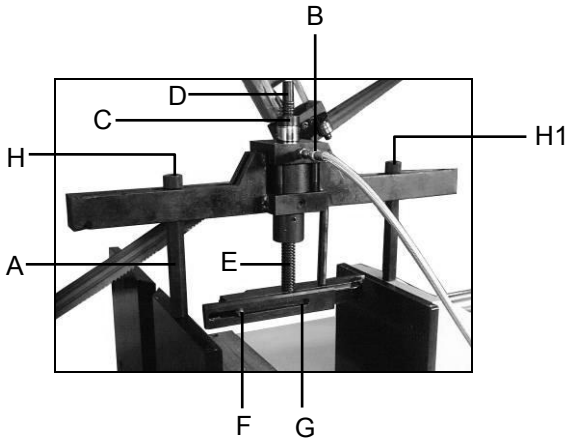
- A screw for moving the device forward or backward.
- B screw for moving the device downward or upward.
- Loosen C thumb knob for adjust the device angle.



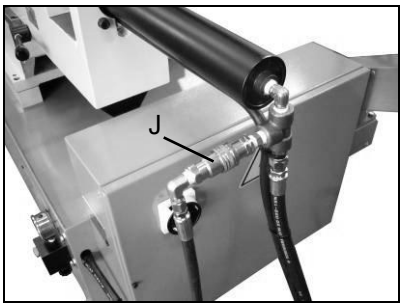


5.10 Install the vertical press on the vise jaws for bundle cutting (optional)

- Standard press capacity (W x H) 250~485 x 150~240 mm. Vise plates height 240 mm
- Special press capacity (W x H) 250~485 x 300~400 mm. Vise plates height 400 mm



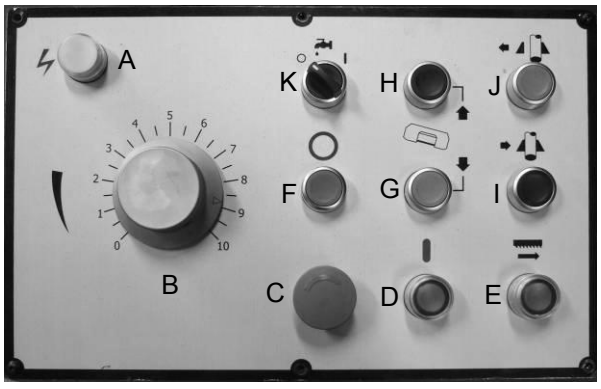
- Open the vise more than 250mm.
- Attach and Tighten posts bolts' (A) on to vises. Then attach the vertical press to the top of the post bolts. Connect the Hydraulic connector (B).
- Attach the nuts (H) on to the posts, but do not make the nut (H1) on moveable vise jaw too tight. *Otherwise, the vise won't be able to clamp the work piece or the post bolts will be damaged.
- Adjust the vise press (E) to sit approximately 5-8mm above the work piece. Loose nut (C) and rotate the bolt (D) to raise or lower the vise press (E).
- Adjust the vise press width to fit the work piece size. Loosen screws (F) on both sides of the vise press then move press extender bars (G) desired width.



- Turn OFF the hydraulic pump.
- Attach the hydraulic hose to connecter (B) and then attach the quick link connecter (J) to the 90-degree fitting.
- Switch ON the hydraulic pump.

6 OPERATION CYCLE

6.1 Operation cycle



- Turn on the main connect. on the door of electrical box. Then the Power indicator (A) will light up.
- Start the hydraulic system, use button (D).

- Raise the saw bow, Use bow up button (H).
- Open the vise, use vise open button (J)
- Load the working material.
- Secure the material, use the vise close button (I).
- Base on the diameter of the material; set the saw bow's height: contactor (5.1 L).
- Choose the blade speed appropriate for the material.
- Start operation by using the start button (E)
- When the cutting operation is finished the saw bow will automatically rise to the preset height ready for the next operation.

6.2 Stopping or emergency stopping

There are two ways to stop the machine in an event of an emergency or improper operation.

- For most situations, use the stop switch 6.1 F Using the stop switch 6.1 F will not reset the controls and your operation setting. The blade and drive motor will stop. Then the saw bow stay arise to the top position. open the vise to check the issue. After checking, close the vise and start to cutting

.

- For unsafe and emergency conditions use the emergency stop button 6.1 C. Using emergency stop button 6.1 C will stop the machine in last position. The motor and hydraulic will stop and control setting will be reset.
- To restart, the emergency stop button 6.1 C must be turned to release from the pressed position.

7 ROUTINE AND SPECIAL MAINTENANCE

The maintenance jobs are listed below, divided into daily, weekly, monthly and six-month intervals. If the following operations are neglected, the result will be premature wear of the machine and poor performance.

7.1 Daily maintenance

- Give general cleaning to the machine to remove accumulated shavings.
- Clean the lubricating coolant drain hole to avoid excess fluid.
- Top off 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.

7.2 Weekly maintenance

- Thoroughly clean the machine to remove shavings, especially from the coolant tank.
- Removal of pump from its housing, cleaning of the suction filter and suction zone.
- Clean the filter of the pump suction head and the suction area.

- Use compressed air to clean the blade guides (guide bearings and drain hole of the lubricating cooling).
- Clean flywheel housings and blade sliding surfaces on flywheels.

7.3 Monthly maintenance

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

7.4 Six-monthly maintenance

- Test the continuity of the equipotential protection circuit.

7.5 Oils for lubricating coolant

Considering the vast range of products on the market, the user can choose the one most suited to their own requirements, using as reference the type SHELL LUTEM OIL ECO. THE MINIMUM PERCENTAGE OF OIL DILUTED IN WATER IS 8 - 10 %.

7.6 Oil disposal

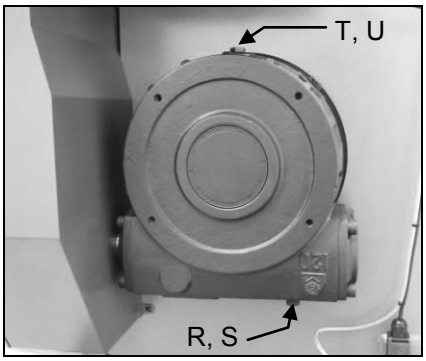
The disposal of these products is controlled by strict regulations. Please see the Chapter on "Machine dimensions Transport - Installation" in the section on Dismantling.

7.7 Special maintenance

Special maintenance must be conducted by skilled personnel. We advise contacting your nearest dealer and/or importer. Other protective and safety equipment, devices (of the reducer), the motor, the motor pump, and other electrical components also require special maintenance.

7.8 Changing gear oil

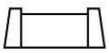
The gear box requires periodic changing of oil. The oil must be changed by the first 6 months of a new machine and every year thereafter.



- To change the gear box oil
- Lower the saw bow to horizontal position.
- Disconnect the machine from the power source.
- Release the drain hold (R) to draw off gear oil by
- loosening the hex head screw (S).
- Open fill hole (T) by releasing hex head screw (U)
- Replace the screw (S) after oil completely flows off.
- Filling in gear oil from T hole, until oil be sight from the visual glass.
- Replace hole using the fill hole (T).
- Replace hex head screw (U)

8 TECHNICAL CHARACTERISTICS

8.1 Table of cutting capacity and technical details

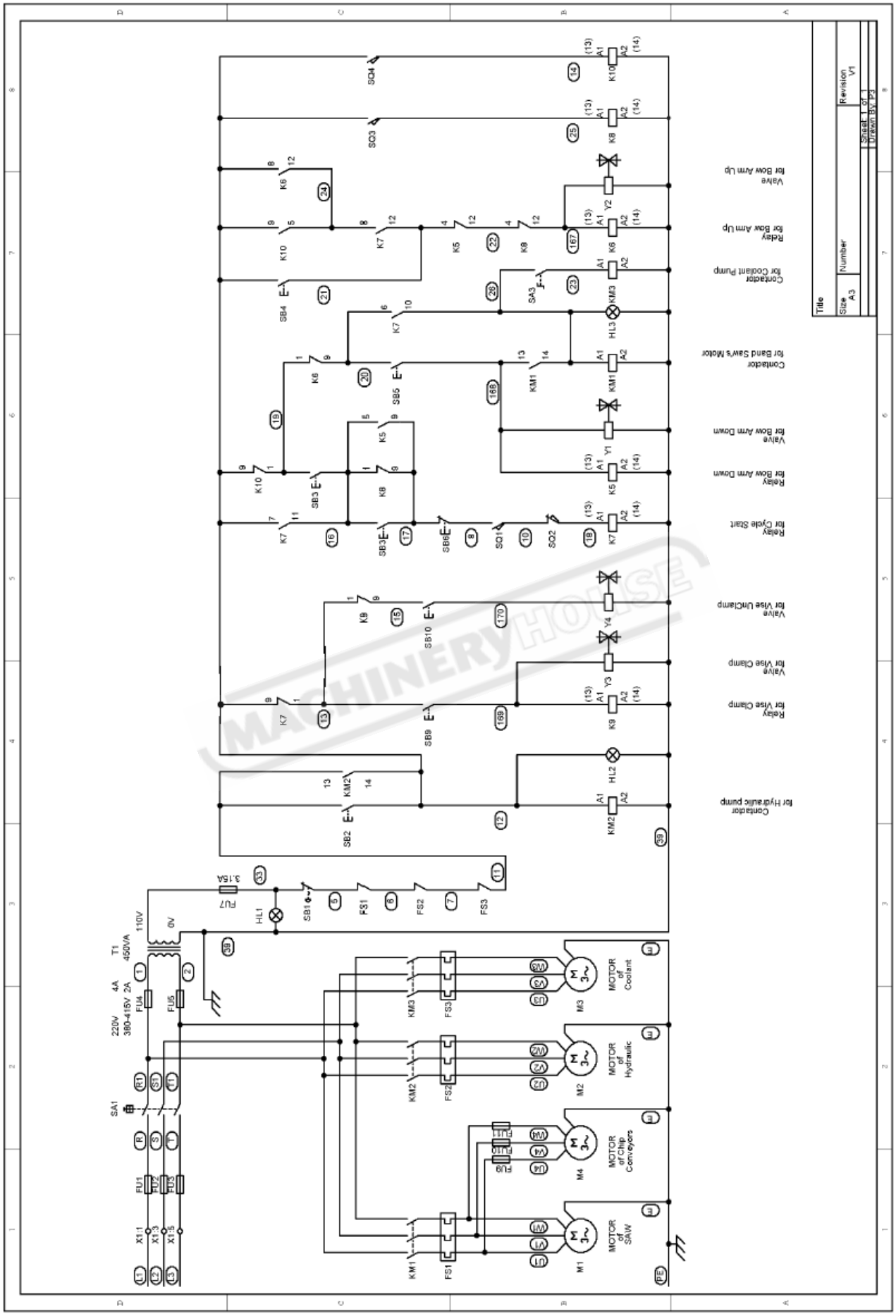
Cutting Capacity			
90º	460mm	460 x 460mm	440x600mm
45º	445mm	445 x 445mm	
60º	295mm	295 x 295mm	

Electric motor-blade rotation	3.7kW
Reduction unit in oil bath	40:1L
Blade Dimentions	41x1.3x5330mm
Blade speed cutting	32-96MPM
Coolant tank volume	55L
Hydraulic tank volume	15L
Machine weight	1320kgs
Packing measurement	2810x1130x1870mm

TYPES OF STEEL						CHARACTERISTICS		
USE	I UNI	D DIN	F AF NOR	GB SB	USA AISI-SAE	Hardness BRINELL HB	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 nitriding	35CrMo4 39NiCrMo4 41CrAlMo7	34CrMo4 36CrNiMo4 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	---- BS 1 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

8.2 NOISE TESTS

The test was held under environmental noise levels of 65db. Noise measurements with the machine operating unload was 71db. Noise level during the cutting of mild carbon steel was 73db.
NOTE: with the machine operating, the noise level will vary according to the different materials being processed. The user must therefore assess the intensity and if necessary provide the operators with the necessary personal protection, as required by Law 277/1991.

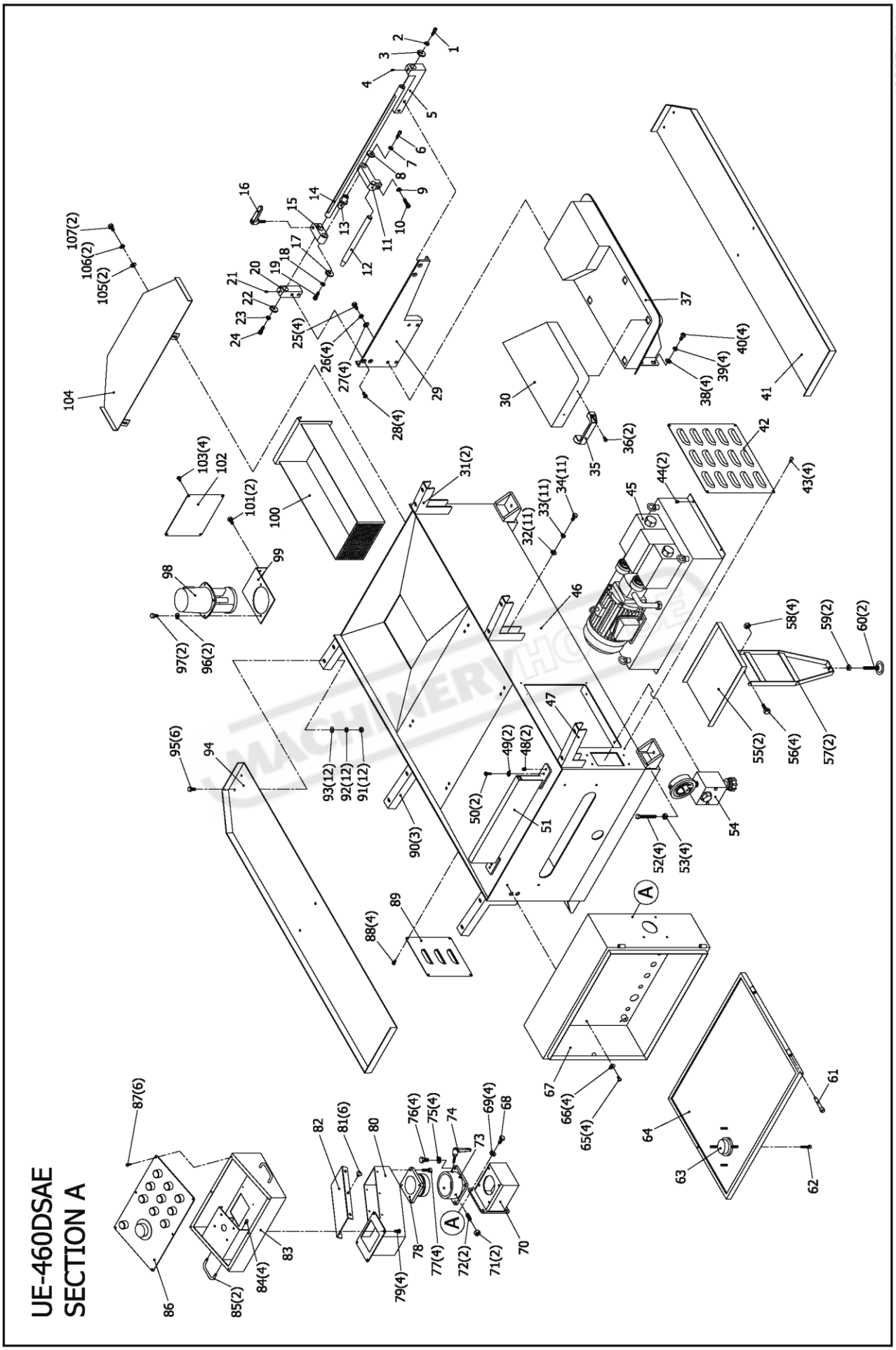

Title
Size A3
Number
Revision V1
Sheet 1 of 1
Drawn by P.3
Contactor for Hydraulic pump
Relay for Vise Clamp
Valve for Vise Clamp
Valve for Vise UnClamp
Relay for Cycle Start
Relay for Bow Arm Down
Valve for Bow Arm Down
Contactor for Band Saw's Motor
Contactor for Coolant Pump
Relay for Bow Arm Up
Valve for Bow Arm Up
MOTOR of SAW
MOTOR of Chip Conveyors
MOTOR of Hydraulic
MOTOR of Coolant
T1 450VA
220V 4A
380-415V 2A
110V
0V
3.15A
FU7
HL1
SB1
FS1
FS2
FS3
SB2
SB3
SB4
SB5
SB6
SB9
SB10
SQ1
SQ2
SQ3
SQ4
KM1
KM2
KM3
HL2
HL3
K5
K6
K7
K8
K9
K10
Y1
Y2
Y3
Y4
SA1
SA3
FU1
FU2
FU3
FU4
FU5
FU6
FU8
FU9
FU10
M1
M2
M3
M4
PE
MACHINERY HOUSE

SECTION A – PARTS LIST

Part No.	Description	Size No.	Q'ty	Part No.	Description	Size No.	Q'ty
A1	Hex. Socket Cap Screw	3/8"x1"L	1	A48	Set Screw	M8x12L	2
A2	Spring Washer	3/8"	1	A49	Spring Washer	M8	2
A3	Washer	S1380221-3	1	A50	Hex. Socket Cap Screw	M8x16L	2
A4	Set Screw	5/16"x5/16"L	1	A51	Position Bracket	460D3-29-A	1
A5	Position Bracket (L)	S1380221-2	1	A52	Hex. Cap Bolt	M16x60L	4
A6	Hex. Socket Cap Screw	3/8"x1"L	1	A53	Nut	M16	4
A7	Spring Washer	3/8"	1	A54	Vise Pressure Valve		1
A8	Washer	S1380221-3	1	A55	Movable Coolant Tray	460D3-39	2
A9	Spring Washer	3/8"	1	A56	Hex. Cap Bolt	M6x12L	4
A10	Hex. Socket Cap Screw	3/8"x1"L	1	A57	Bracket	460D3-39-A	2
A11	Shaft Bracket	S1380110-C	1	A58	Nut	M6	4
A12	Upper Shaft	460D2-64	1	A59	Nut	1/2"	2
A13	Shaft	S1380221-2	1	A60	Adjusting Bolt	331D4-37	2
A14	Length Scale Rod	S1380221	1	A61	Door Pin		2
A15	Adjusting Block	S1380110-B	1	A62	Hex. Socket Cap Screw	M6x30L	1
A16	Locking Handle	350S0420	1	A63	Power Switch		1
A17	Washer	S1380221-3	1	A64	Electric Box Cover	331D3-07	1
A18	Spring Washer	3/8"	1	A65	Hex. Socket Cap Screw	M6x8L	4
A19	Hex. Socket Cap Screw	3/8"x1"L	1	A66	Spring Washer	M6x8L	4
A20	Position Bracket (R)	S1380110-A	1	A67	Electric Box (Swivel)	331D3-06-E	1
A21	Set Screw	5/16"x5/16"L	1	A68	Hex. Cap Bolt	M8x16L	4
A22	Washer	S1380221-3	1	A69	Spring Washer	M8	4
A23	Spring Washer	3/8"	1	A70	Fixing Bracket	331D3-37	1
A24	Hex. Socket Cap Screw	3/8"x1"L	1	A71	Nut	M6	2
A25	Hex. Cap Bolt	M10x25L	4	A72	Set Screw	M6x30L	2
A26	Spring Washer	M10	4	A73	Shaft Bushing	331D1-18-A	1
A27	Washer	M10	4	A74	Locking Handle M8x30L	331D4-38	1
A28	Flat Head Screw	5/16"x3/4"L	4	A75	Spring Washer	M8	4
A29	Outlet Side Plate	460D3-40-B	1	A76	Hex. Cap Bolt	M8x16L	4
A30	Removable Retrieval Plate	460D3-40-A	1	A77	Hex. Cap Bolt	M6x16L	4
A31	Fixing Bracket	460D3-02-B	2	A78	Swiveling Shaft	331D1-18	1
A32	Washer	M8	11	A79	Button Head Socket Screw	M6x8L	4
A33	Spring Washer	M8	11	A80	Swiveling Bracket	460D3-09	1
A34	Hex. Cap Bolt	M8x20L	11	A81	Big Round Head Screw	M6x8L	6
A35	Handle	9160502	1	A82	Cover	460D3-09-A	1
A36	Big Round Head Screw	M6x12L	2	A83	Operation Box	331E3-01	1
A37	Retrieval Table	460D3-40	1	A84	Button Head Socket Screw	M5x8L	4
A38	Washer	M12	4	A85	Handle A-42-C	330S0418	2
A39	Spring Washer	M12	4	A86	Control Panel		1
A40	Hex. Cap Bolt	M12x25L	4	A87	Button Head Socket Screw	M5x8L	6
A41	Coolant Tray	460D3-02-A	1	A88	Button Head Socket Screw	M6x8L	4
A42	Cover	460D3-05-A	1	A89	Hydraulic Rear Cover	460D3-05-B	1
A43	Button Head Socket Screw	M6x8L	4	A90	Fixing Bracket	331D3-02-B	3
A44	Hex. Socket Cap Screw	M6x12L	2	A91	Nut	M8	12
A45	Hydraulic Unit		1	A92	Spring Washer	M8	12
A46	Machine Base	460D3-01	1	A93	Washer	M8	12
A47	Supporting Bracket	460D3-02-C	1	A94	Coolant Plate (L)	460D3-02	1

SECTION A – PARTS LIST

Part No.	Description	Size No.	Q'ty	Part No.	Description	Size No.	Q'ty
A95	Hex. Cap Bolt	M8x20L	12				
A96	Hex. Cap Bolt	M6x12L	2				
A97	Spring Washer	M6	2				
A98	Coolant Pump	1/6"x150L	1				
A99	Fixing Plate	331D3-39	1				
A100	Chip Box	460D3-04	1				
A101	Button Head Socket Screw	M6x12L	2				
A102	Cover	460D3-05	1				
A103	Button Head Socket Screw	M6x8L	4				
A104	Coolant Plate (Rear)	460D3-03-A	1				
A105	Washer	M8	2				
A106	Spring Washer	M8	2				
A107	Hex. Cap Bolt	M8x16L	2				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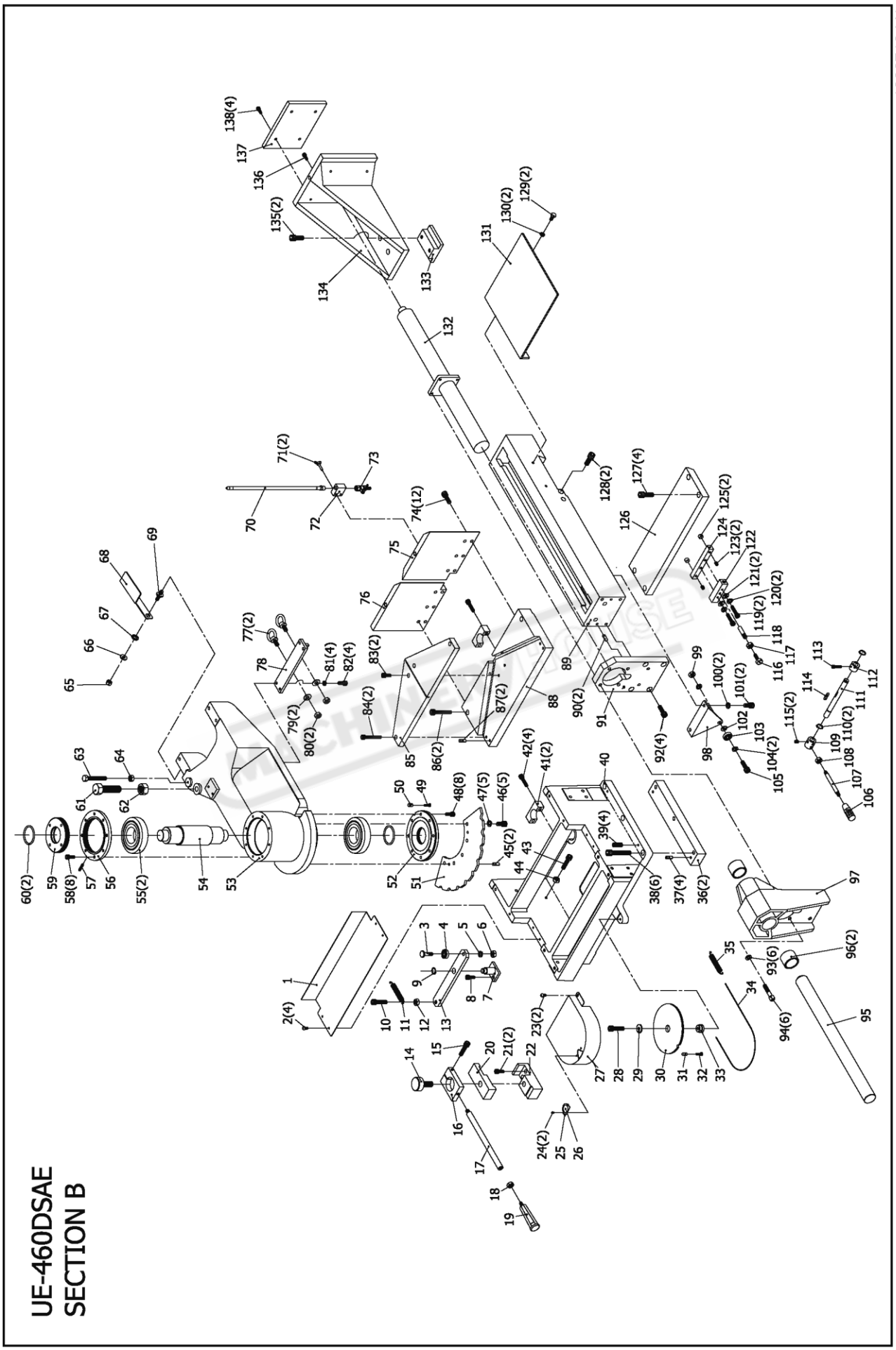
SECTION B – PARTS LIST

Part No.	Description	Size No.	Q'ty	Part No.	Description	Size No.	Q'ty
B1	Cover Plate	460D3-26-A	1	B48	Hex. Socket Cap Screw	M8x20L	8
B2	Button Head Socket Screw	M5x8L	4	B49	Hex. Cap Bolt	M5x15L	1
B3	Cam Shaft	331D2-31	1	B50	Wire Fastener	331D2-35	1
B4	Bearing 6000	331D5-10A	1	B51	Position Plate	331D2-25	1
B5	Spring Washer	M10	1	B52	Lower Cover	331D2-05	1
B6	Nut	M10	1	B53	Swiveling	460D1-06	1
B7	Cam Bracket	331D2-30	1	B54	Swiveling Shaft	331D2-03	1
B8	Hex. Socket Cap Screw	M8x25L	2	B55	Bearing 30312	331D5-12	2
B9	C Ring	S16	1	B56	Upper Cover	331D2-06	1
B10	Hex. Socket Cap Screw	M10x40L	1	B57	Set Screw	M6x25L	1
B11	Cam Spring	331D4-02	1	B58	Hex. Socket Cap Screw	M8x20L	8
B12	Nut	M10	1	B59	Tighten Plate	331D2-06-A	1
B13	Connecting Plate	460D2-32	1	B60	Oil Ring P60	S138F5-01	2
B14	Locking Bolt	331D2-27	1	B61	Hex. Cap Bolt	M20x65L	1
B15	Hex. Socket Cap Screw	M10x50L	1	B62	Nut	M20	1
B16	Connecting Block	331D2-28	1	B63	Hex. Cap Bolt	M10x60L	1
B17	Locking Rod	460D2-29	1	B64	Nut	M10	1
B18	Nut	M12	1	B65	Nylon Nut	M10	1
B19	Rubber Handle	9160501	1	B66	Washer	S138F2-26-A	1
B20	Brake Plate	331D2-26	1	B67	Washer	S138F2-26-B	1
B21	Hex. Socket Cap Screw	M8x20L	2	B68	Position Adjusting Plate	S138F3-29	1
B22	Brake Bracket	331D1-11	1	B69	Position Bolt	S20A2-01	1
B23	Button Head Socket Screw	M6x8L	2	B70	Hose SP103 1/4"x18"	460D4-04	1
B24	Hex. Socket Cap Screw	M4x6L	2	B71	Wing Screw	M6x30L	2
B25	Magnifier Holder	331D3-43	1	B72	Hose Seat	L46N2-20	1
B26	Angle Magnifier	331D4-09	1	B73	Coolant Switch	L25A4-49	1
B27	Cover	331D3-25	1	B74	Hex. Socket Cap Screw	M10x30L	12
B28	Hex. Socket Cap Screw	M10x40L	1	B75	Attached Plate (R)	460D2-24	1
B29	Washer	M10	1	B76	Attached Plate (L)	460D2-23	1
B30	Center Wheel	331D2-33	1	B77	Screw Holder	1/2"x50L	2
B31	Wire Fastener	331D2-35	1	B78	Lower Bracket	460D1-17	1
B32	Hex. Cap Bolt	M5x15L	1	B79	Washer	1/2"	2
B33	Bushing	331D2-34	1	B80	Nut	1/2"	2
B34	Steel Rope		1	B81	Spring Washer	M8	4
B35	Angle Spring	331D4-03	1	B82	Hex. Socket Cap Screw	M8x25L	4
B36	Plate	460D2-50	2	B83	Hex. Socket Cap Screw	M8x20L	2
B37	Spring Pin	8x20L	4	B84	Hex. Socket Cap Screw	M10x55L	2
B38	Hex. Socket Cap Screw	M12x130L	6	B85	Angle Cutting Table	460D1-03	1
B39	Set Screw	M12x25L	4	B86	Hex. Socket Cap Screw	M10x60L	2
B40	Table	460D1-01	1	B87	Spring Pin	8x20L	2
B41	Fixing Block	331D2-04	2	B88	Cutting Platform	460D1-02	1
B42	Hex. Socket Cap Screw	M10x35L	4	B89	Vise	460D1-04-A	1
B43	Hex. Socket Cap Screw	M10x40L	1	B90	Spring Pin	8x20L	2
B44	Nut	M10	1	B91	Position Plate	460D2-65	1
B45	Spring Pin	8x20L	2	B92	Hex. Socket Cap Screw	M12x35L	4
B46	Hex. Socket Cap Screw	M10x20L	5	B93	Spring Washer	M10	6
B47	Spring Washer	M10	5	B94	Hex. Socket Cap Screw	M10x40L	6

SECTION B – PARTS LIST

Part No.	Description	Size No.	Q'ty	Part No.	Description	Size No.	Q'ty
B95	Upper Shaft	460D2-56	1				
B96	Oilless Bearing 45x5x40	460D4-23	2				
B97	Central Bracket	460D1-21	1				
B98	Supporting Bracket	460D3-29	1				
B99	Nut	M10	1				
B100	Spring Washer	M10	2				
B101	Hex. Socket Cap Screw	M10x16L	2				
B102	Washer	M10	1				
B103	Bearing 6200	L25A5-01	1				
B104	Spring Washer	M10	2				
B105	Hex. Socket Cap Screw	M10x30L	1				
B106	Long Handle	331D4-26	1				
B107	Locking Arm	331D2-53-D	1				
B108	Nut	M10	1				
B109	Locking Cam	331D2-53-C	1				
B110	C Ring	S17	2				
B111	Locking Shaft	331D2-53	1				
B112	Locking Wheel	331D2-53-A	1				
B113	Hex. Socket Cap Screw	M6x16L	1				
B114	Key	5x5x20	1				
B115	Set Screw	M8x8L	2				
B116	Hex. Cap Steel Screw	M6x16L	1				
B117	Nut	M6	1				
B118	Position Shaft	331D2-53-B	1				
B119	Hex. Socket Cap Screw	M8x40L	2				
B120	Spring Washer	M8	2				
B121	Washer	M8	2				
B122	Vise Position Block	331D2-19	1				
B123	Set Screw	M8x8L	2				
B124	Vise Locking Block	331D2-20	1				
B125	Attached Copper	331D2-21	2				
B126	Guide Plate	460D2-17	1				
B127	Hex. Socket Cap Screw	M12x35L	4				
B128	Hex. Socket Cap Screw	M12x30L	2				
B129	Hex. Cap Bolt	M8x20L	2				
B130	Spring Washer	M8	2				
B131	Table Plate	460D3-26	1				
B132	Front Vise Cylinder		1				
B133	Position Block	331D2-18-A	1				
B134	Front Vise	460D1-05	1				
B135	Hex. Socket Cap Screw	M12x30L	2				
B136	Hex. Socket Cap Screw	M8x20L	1				
B137	Attached Plate	460D2-22	1				
B138	Hex. Socket Cap Screw	M8x20L	4				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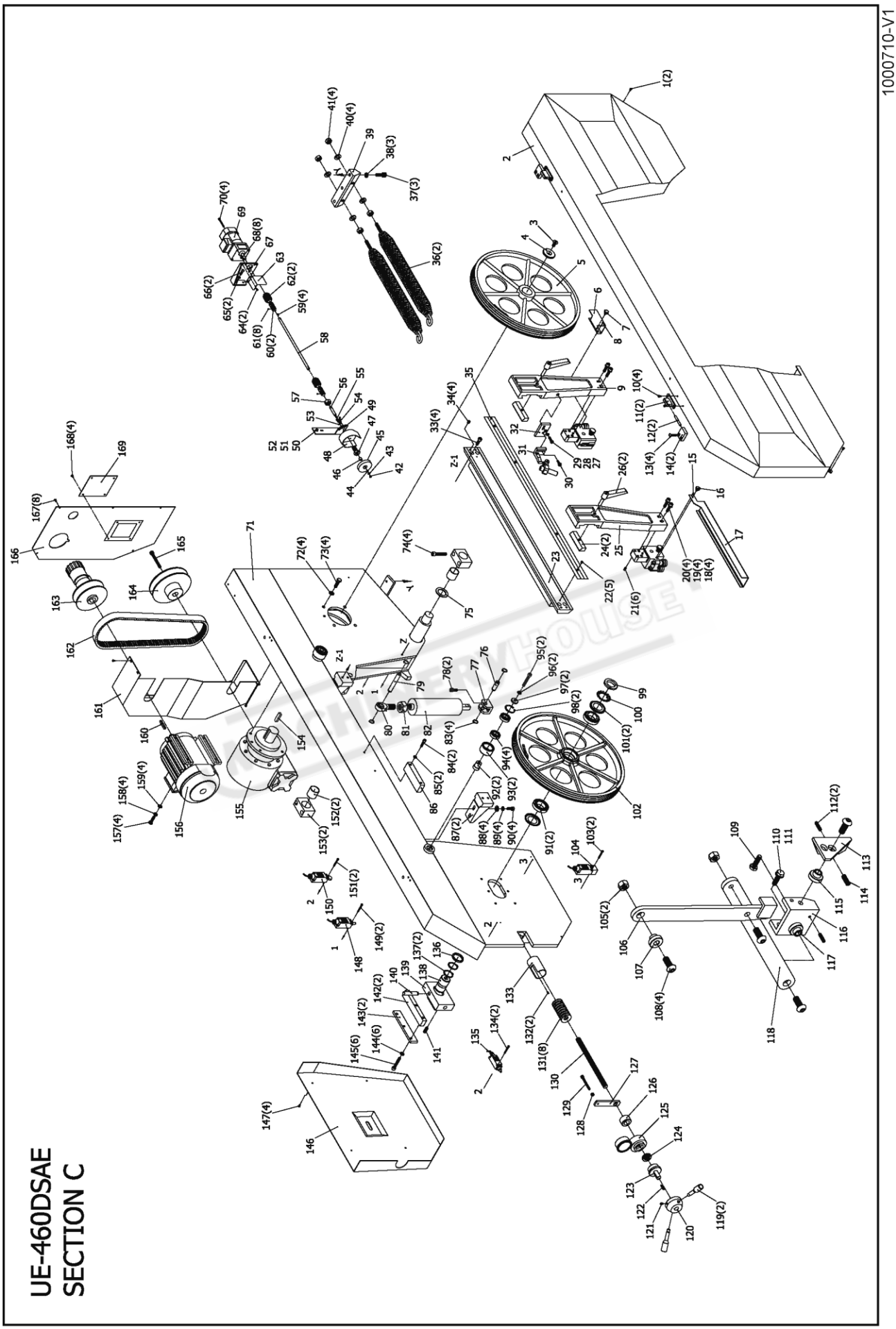
SECTION C – PARTS LIST

Part No.	Description	Size No.	Q'ty	Part No.	Description	Size No.	Q'ty
C1	Button Head Socket Screw	M6x8L	2	C48	Brush Cover	460D3-31	1
C2	Wheel Cover	460D3-10-C	1	C49	Fixing Bracket	460D3-31-A	1
C3	Flat Head Screw	M12x25L	1	C50	Hex. Cap Bolt	M8x20L	2
C4	Driver Wheel Washer	331D2-49	1	C51	Spring Washer	M8	2
C5	Driver Wheel	460D1-13	1	C52	Washer	M8	2
C6	Blade Guide	460D3-13-A	1	C53	Spring Washer	M6	1
C7	Thumb Screw	M5x8L	1	C54	Wing Screw	M6x10L	1
C8	Spring Pin	4x12L	1	C55	Hex. Socket Cap Screw	M6x20L	1
C9	Guide Post (R)	460D1-07-A	1	C56	Brush Shaft	460D2-59-1	1
C10	Button Head Socket Screw	M6x16L	4	C57	Nut	M20	1
C11	Cover Latch	460D2-45	2	C58	Transformer Shaft	460D2-59-2	1
C12	Pin	8x70L	2	C59	Key	4x15L	4
C13	Button Head Socket Screw	M8x30	4	C60	Universal Joint	L25A4-02	2
C14	Latch Block	460D2-44	2	C61	Set Screw	M5x6L	8
C15	Spring Pin	4x12L	1	C62	Universal Joint Cover	L25A4-02-1	2
C16	Thumb Screw	M5x8L	1	C63	Universal Joint Plate	460D3-31-C	1
C17	Blade Guide	460D3-12-A	1	C64	Button Head Socket Screw	M5x8L	2
C18	Hex. Socket Cap Screw	M10x35L	4	C65	Chip Motor Bracket	460D3-31-B	1
C19	Washer	M10	4	C66	Spring Washer	M8	1
C20	Spring Washer	M10	4	C67	Hex. Socket Cap Screw	M8x20L	1
C21	Set Screw	M8x16L	6	C68	Nut	M6	8
C22	Round Head Screw	M5x8L	5	C69	Chip Motor		1
C23	Guide Pate	460D1-08	1	C70	Hex. Socket Cap Screw	M6x90L	4
C24	Locking Block	460D2-46	2	C71	Speed Sensor Bracket (Type 120)	460D3-19	1
C25	Guide Post (L)	460D1-07	1	C72	Spring Washer	M12	4
C26	Locking Handle M12x50L	331D4-39	2	C73	Hex. Cap Steel Screw	M12x45L	4
C27	Hex. Socket Cap Screw	M5x15L	1	C74	Hex. Socket Cap Screw	M12x70L	4
C28	Spring Washer	M5	1	C75	Shaft Washer	331D2-01-A	1
C29	Washer	M5	1	C76	Lower Shaft	460D2-37	1
C30	Round Head Screw	M6x12L	1	C77	Lower Bracket	460D1-18	1
C31	Laser Device Set		1	C78	Hex. Socket Cap Screw	M8x20L	2
C32	Laser Bracket	460D2-61	1	C79	Upper Shaft	460D2-38	1
C33	Hex. Socket Cap Screw	M10x20L	4	C80	Eye Bearing	POS16	1
C34	Set Screw	M10x16L	4	C81	Nut	M20xP1.5	1
C35	Metal Scale	NPC-003	1	C82	Lift Cylinder		1
C36	Spring 9.0x56x54N	460D4-10	2	C83	Ring	S20	4
C37	Hex. Socket Cap Screw	M10x25L	3	C84	Hex. Socket Cap Screw	M8x40L	2
C38	Spring Washer	M10	3	C85	Spring Washer	M8	2
C39	Upper Bracket	460D1-16	1	C86	Press Block	460D2-55	1
C40	Washer	1/2"	4	C87	Support Plate	460D1-08-A	2
C41	Nut	1/2"	4	C88	Washer	M10	4
C42	Nut	M6	1	C89	Spring Washer	M10	4
C43	Spring Washer	M6	1	C90	Hex. Socket Cap Screw	M10x30L	4
C44	Washer	M6	1	C91	Bearing 32009	460D4-20	2
C45	Brush	331D4-08	1	C92	Guide Roller Shaft	460D2-11	2
C46	Oilless Bush 1212	L25A5-08	2	C93	Guide Roller	460D2-10	2
C47	Shaft Bushing	460D2-59	1	C94	Bearing 6005	460D4-21	4

SECTION C – PARTS LIST

Part No.	Description	Size No.	Q'ty	Part No.	Description	Size No.	Q'ty
C95	Hex. Socket Cap Screw	M12x60L	2	C142	Slide Guide	460D2-14	2
C96	Spring Washer	M12	2	C143	Slide Plate	331D2-15	2
C97	Washer	460D2-11-A	2	C144	Spring Washer	M10	6
C98	Ring	R42	2	C145	Hex. Socket Cap Screw	M10x60L	6
C99	Nut	AN09	1	C146	Idle Wheel Cover (Type 120)	460D3-11-A	1
C100	Teeth Washer	AW09	1	C147	Button Head Socket Screw	M6x8L	4
C101	Shaft Cover 32009AV	460D4-08	2	C148	Limit Switch AZD-1001T	331D5-06	1
C102	Idle Wheel	460D1-12	1	C149	Hex. Socket Cap Screw	M4x35L	2
C103	Hex. Socket Cap Screw	M4x35L	2	C150	Limit Switch ED-1-3-32	H33D4-11	1
C104	Limit Switch AZD-S11	331D5-07	1	C151	Hex. Socket Cap Screw	M4x35L	2
C105	Nut	M8	2	C152	Oilless Bearing 4040	331D5-14	2
C106	Short Bracket	460D3-27-A	1	C153	Spacer	331D2-02-A	2
C107	Spacer	460D3-27-C	1	C154	Key	14x9x50	1
C108	Button Head Socket Screw	M8x25L	4	C155	Gear Reducer 120#1/40	460D4-15	1
C109	Hex. Cap Bolt	M8x20L	1	C156	Motor	5HP	1
C110	Hex. Cap Bolt	M8x20L	1	C157	Hex. Cap Bolt	M10x35L	4
C111	Spring Washer	M8	1	C158	Spring Washer	M10	4
C112	Set Screw	M4x12L	2	C159	Washer	M10	4
C113	Safe Locker	460D3-27-4	1	C160	Key	10x8x40	1
C114	Spring		1	C161	Wheel Box (Type 120)	460D3-15	1
C115	Spacer	460D3-27-6	1	C162	Belt 1922V504	460D4-06	1
C116	Holding Bracket	460D3-27-2	1	C163	Speed Controlled Wheel (Variable)	460D4-16	1
C117	Bracket Bush	460D3-27-5	1	C164	Speed Controlled Wheel (Fixing)	460D4-16	1
C118	Long Bracket	460D3-27	1	C165	Hex. Socket Cap Screw	M8x65L	1
C119	Handle	3500217	2	C166	Wheel Box Cover (Type 120)	460D3-16	1
C120	Handwheel	3500216	1	C167	Button Head Socket Screw	M5x8L	8
C121	Set Screw	M8x10L	1	C168	Button Head Socket Screw	M5x8L	4
C122	Key	5x5x30L	1	C169	Cover Plate	460D3-16-A	1
C123	Lead Screw Bushing	460D2-16-A	1				
C124	Bearing 51203	331D4-18	1				
C125	Blade Tension Gauge	460D4-12	1				
C126	Screw Bushing	460D2-16-B	1				
C127	Contactor	460D2-48	1				
C128	Nut	M8	1				
C129	Hex. Cap Bolt	M8x60L	1				
C130	Lead Screw	460D2-16	1				
C131	Disc Spring 502225	460D4-09	8				
C132	Spring Pin	5x12L	2				
C133	Spring Bush	460D2-47	1				
C134	Hex. Socket Cap Screw	M4x35L	2				
C135	Limit Switch AZD-1001T	331D5-06	1				
C136	Idle Wheel Washer	460D2-12-C	1				
C137	Ring	S45	2				
C138	Idle Wheel Shaft Set (type 120)	460D2-12	1				
C139	Slide (type 120)	460D2-13	1				
C140	Pin	16x90L	1				
C141	Set Screw	M12x25L	1				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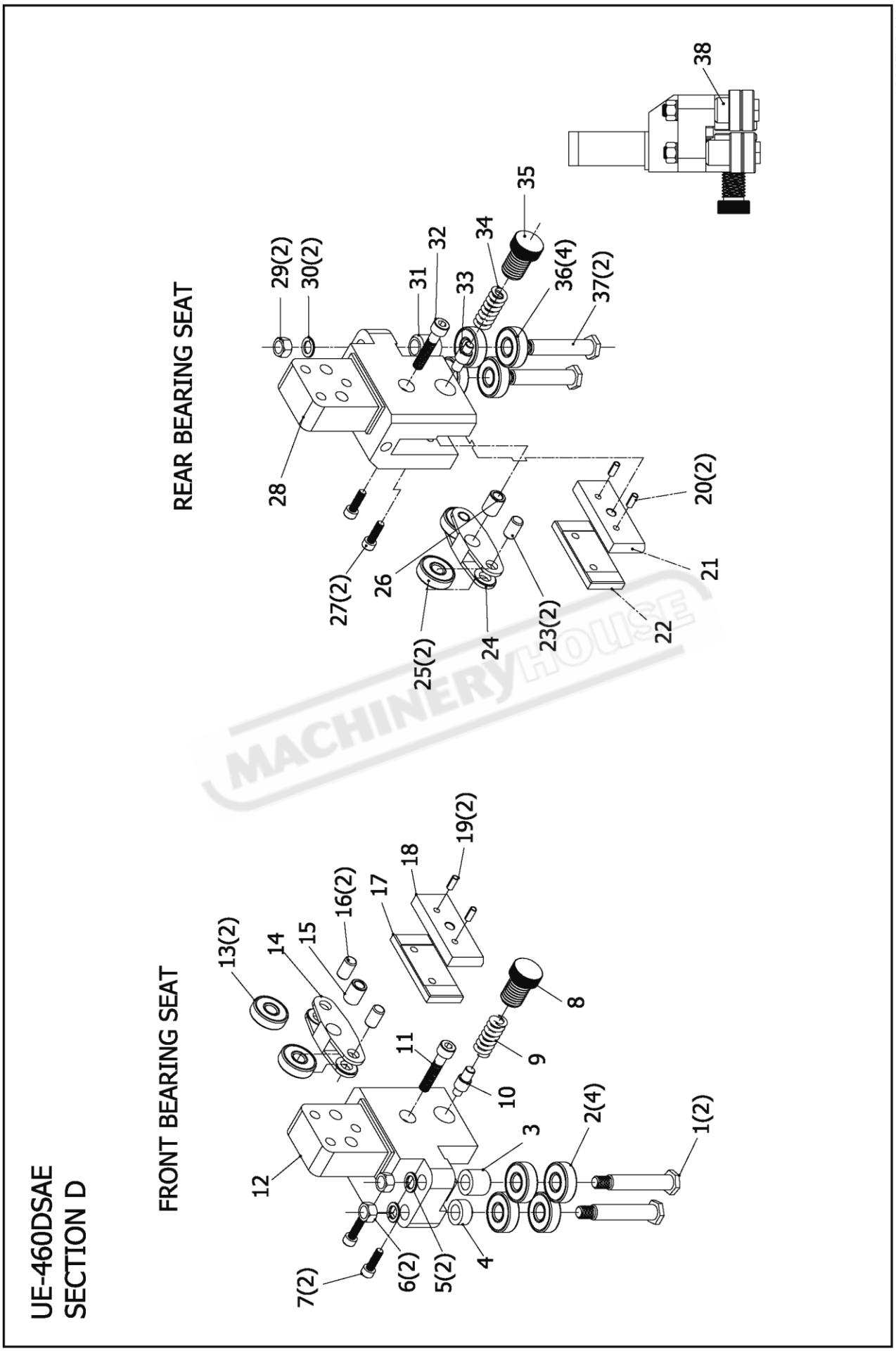
SECTION D – PARTS LIST

Part No.	Description	Size No.	Q'ty	Part No.	Description	Size No.	Q'ty
D1	Bearing Long Shaft	L46N2-19	2				
D2	Bearing 6201	L25A5-03	4				
D3	Bearing Sleeve (Long)	460D2-63	1				
D4	Bearing Sleeve (Short)	460D2-62	1				
D5	Spring Washer	M10	2				
D6	Nut	M10	2				
D7	Hex. Socket Cap Screw	M6x20L	2				
D8	Adjusting Screw	L46N2-33	1				
D9	Adjusting Spring	460D4-11	1				
D10	Guide Pin	3500210	1				
D11	Hex. Socket Cap Screw	M8x40L	1				
D12	Left Guide Block	460D1-09	1				
D13	Bearing 6200	L25A5-01	2				
D14	Bearing Bracket	460D1-22	1				
D15	Shaft Sleeve	L46N2-51-1	1				
D16	Bracket Shaft	L46N2-51-2	2				
D17	Guide Carbide (LF)	L46N2-34	1				
D18	Guide Carbide (LR)	L46N2-34-1	1				
D19	Spring Pin	D5x12L	2				
D20	Spring Pin	D5x12L	2				
D21	Guide Carbide (RR)	L46N2-34-3	1				
D22	Guide Carbide (RF)	L46N2-34-2	1				
D23	Bearing Shaft	L46N2-51-1	2				
D24	Bearing Bracket	460D1-22	1				
D25	Bearing 6200	L25A5-01	2				
D26	Shaft Sleeve	L46N2-51-2	1				
D27	Hex. Socket Cap Screw	M6x20L	2				
D28	Right Guide Block	460D1-10	1				
D29	Nut	M10	2				
D30	Spring Washer	M10	2				
D31	Bearing Sleeve (Long)	460D2-63	1				
D32	Hex. Socket Cap Screw	M8x40L	1				
D33	Guide Pin	3500210	1				
D34	Adjusting Pin	460D4-11	1				
D35	Adjusting Screw	L46N2-33	1				
D36	Bearing 6201	L25A5-03	4				
D37	Bearing Long Shaft	L46N2-19	2				
D38	Bearing Sleeve (Short)	460D2-62	1				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SECTION D
FRONT BEARING SEAT
REAR BEARING SEAT
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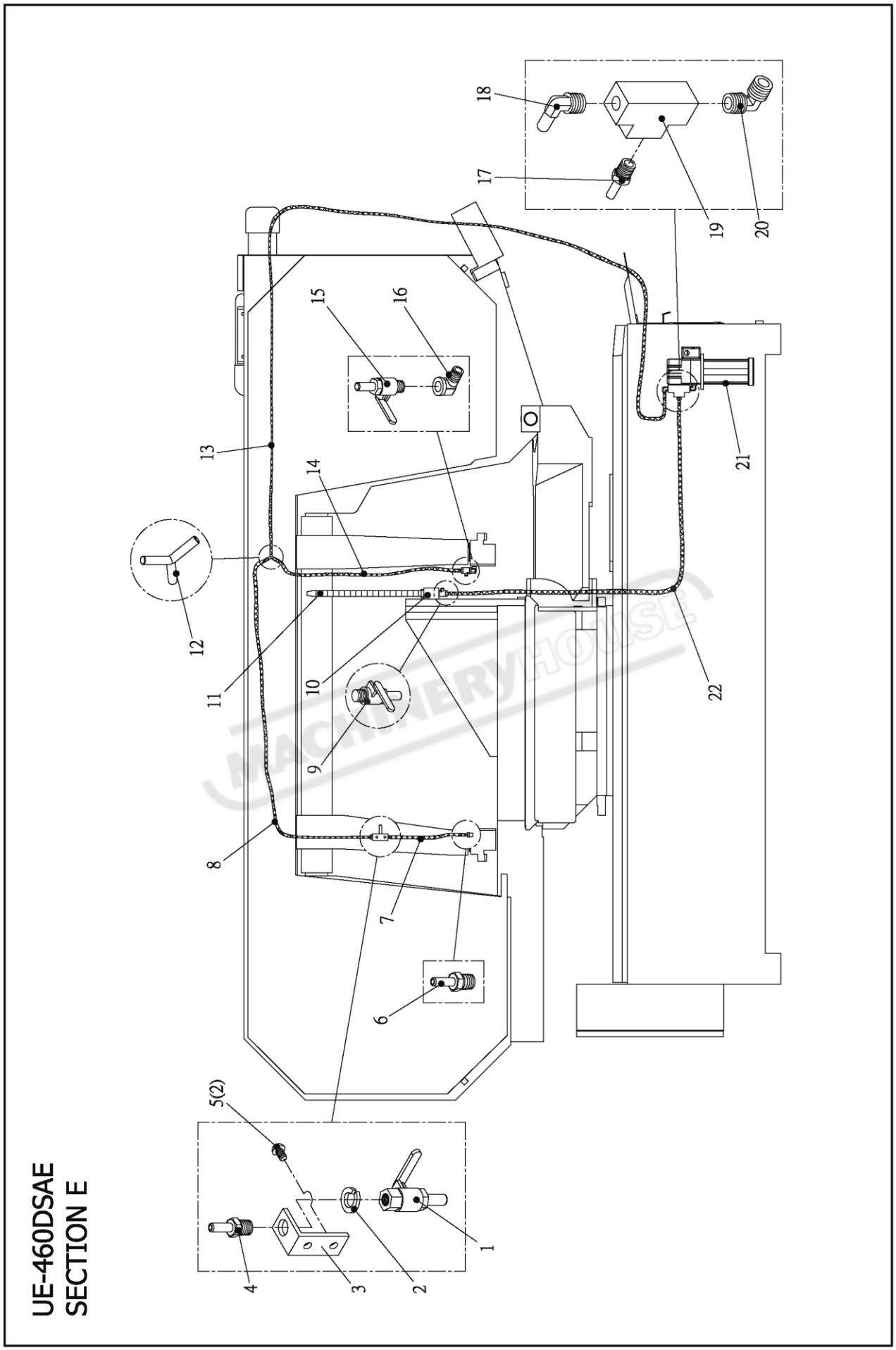
SECTION E – PARTS LIST

Part No.	Description	Size No.	Q'ty	Part No.	Description	Size No.	Q'ty
E1	Cock 1/4x1/4	L25A4-48	1				
E2	Spring Washer	M12	1				
E3	Fixing Bracket	331D3-22	1				
E4	Fitting 1/4x1/4	L25A4-36	1				
E5	Big Round Head Screw	M6x8L	2				
E6	Fitting 1/4x1/4	L25A4-36	1				
E7	Hose	1/4"x185mm	1				
E8	Hose	1/4"x2215mm	1				
E9	Cock 1/4x1/4	L25A4-49	1				
E10	Nozzle Set	L46N2-20	1				
E11	Nozzle 1/4"x18"L	460D4-04	1				
E12	Y Fit	L25A4-62	1				
E13	Hose	1/4"x2700mm	1				
E14	Hose	1/4"x1580mm	1				
E15	Cock 1/4x1/4	L25A4-49	1				
E16	90° Fitting 1/4x1/8	L25A4-39	1				
E17	Fitting 3/8x1/4	L25A4-35	1				
E18	90° Fitting 3/8x1/4	L25A4-21	1				
E19	Fitting Set 3/8	L25A4-60	1				
E20	90° Fitting 1/2x3/8	3300415	1				
E21	Coolant Pump	1/6"x150L	1				
E22	Hose	1/4"x1400mm	1				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SECTION E
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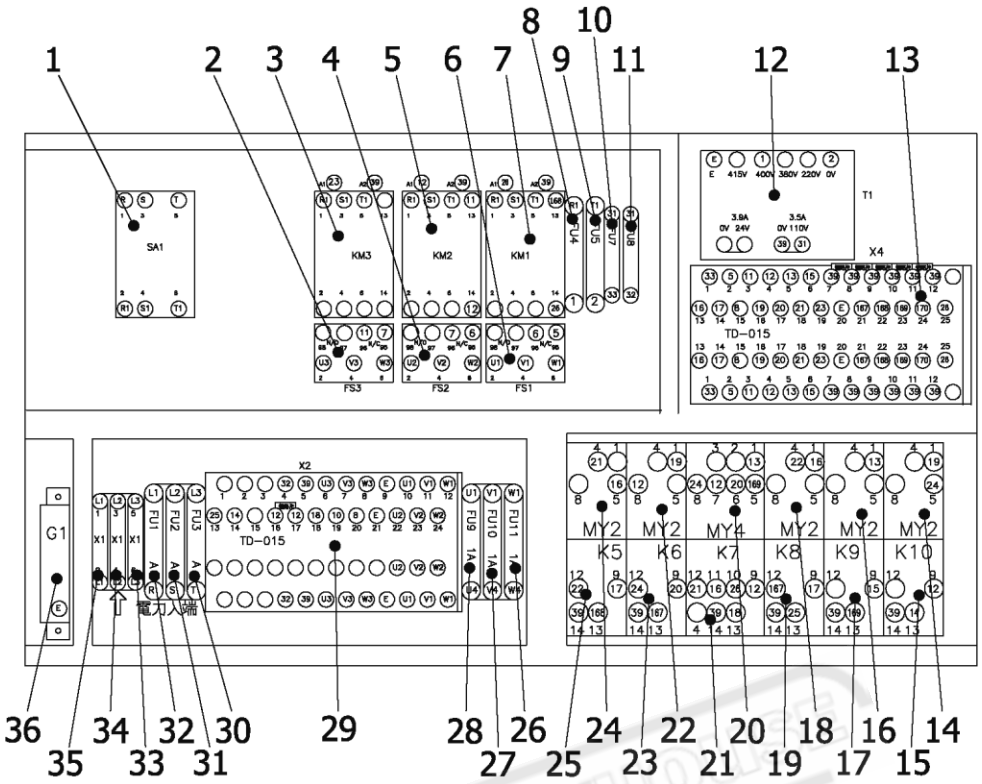
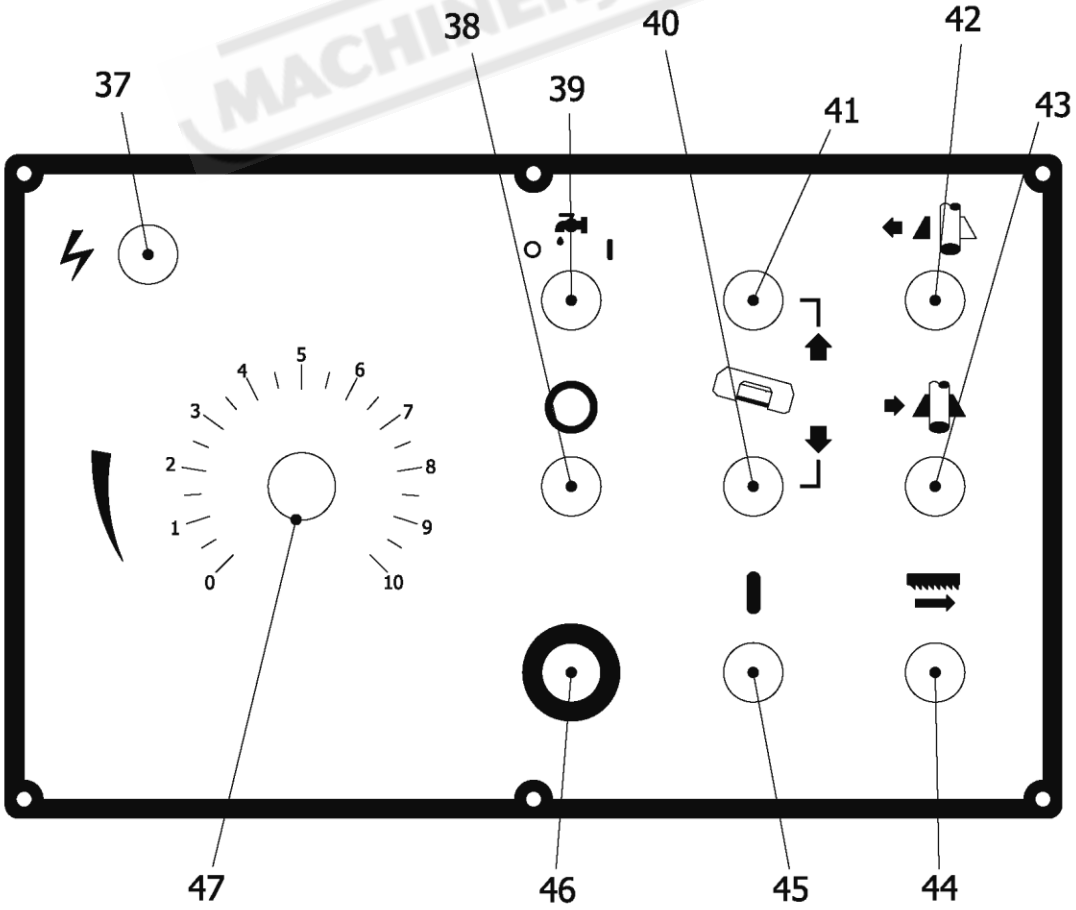
SECTION F – PARTS LIST

Part No.	Description	Size No.	Q'ty	Part No.	Description	Size No.	Q'ty
F1	Power Switch		1				
F2	Coolant Overload Relay		1				
F3	Coolant Magnetic Switch		1				
F4	Hydraulic Overload Relay		1				
F5	Hydraulic Magnetic Switch		1				
F6	Blade Overload Relay		1				
F7	Blade Magnetic Switch		1				
F8	Transformer Power in Fuse		1				
F9	Transformer Power in Fuse		1				
F10	AC110V Fuse		1				
F11	AC110V Fuse		1				
F12	Transformer		1				
F13	Terminal Block		1				
F14	Relay Base		1				
F15	Relay		1				
F16	Relay Base		1				
F17	Relay		1				
F18	Relay Base		1				
F19	Relay		1				
F20	Relay Base		1				
F21	Relay		1				
F22	Relay Base		1				
F23	Relay		1				
F24	Relay Base		1				
F25	Relay		1				
F26	Fuse		1				
F27	Fuse		1				
F28	Fuse		1				
F29	Terminal Block		1				
F30	Power in Fuse		1				
F31	Power in Fuse		1				
F32	Power in Fuse		1				
F33	Power in Terminal		1				
F34	Power in Terminal		1				
F35	Power in Terminal		1				
F36	Grounding Plate		1				
F37	Power Indicator Light		1				
F38	Blade Stop Button		1				
F39	Coolant Start Switch		1				
F40	Bow Down Button		1				
F41	Bow Up Button		1				
F42	Vise Open Button		1				
F43	Vise Close Button		1				
F44	Blade Start Button		1				
F45	Hydraulic Start Button		1				
F46	Emergency Stop Button		1				
F47	Cutting Feed Rate Valve		1				

UE-460DSAE
SECTION F





1000729-V1

⚠WARNING

General Machinery Safety Instructions

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

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

⚠WARNING

Metal Cutting Bandsaw Safety Instructions

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

1. **Maintenance.** Make sure the bandsaw is turned off and disconnect from the main power supply and make sure all moving parts have come to a complete stop before any inspection, adjustment or maintenance is carried out.

2. **Bandsaw Condition.** Bandsaw must be maintained for a proper working condition. Never operate a bandsaw that has damaged or worn parts. Scheduled routine maintenance should performed on a scheduled basis.

3. **Blade Condition.** Never operate a bandsaw with a dull, cracked or badly worn blade. Before using a bandsaw inspect blades for missing teeth and cracks.

4. **Replacing Blade.** Make sure teeth are facing the correct direction. Wear gloves to protect hands and wear safety glasses to protect your eyes.

5. **Hand Hazard.** Keep hands and fingers clear from the line of cut of the blade and offcuts workpieces. Hands can be crushed in vice or from falling machine components and cut by the blade.

6. **Leaving a bandsaw Unattended.** Always turn the bandsaw off and make sure all moving parts have come to a complete stop before leaving the bandsaw. Do not leave bandsaw running unattended for any reason.

7. **Avoiding Entanglement.** Blade guard must be used at all times. Remove loose clothing, belts, or jewelry items. Never wear gloves while machine is in operation. Tie up long hair and use the correct hair nets to avoid any entanglement with the bandsaw moving parts.

8. **Understand the machines controls.** Make sure you understand the use and operation of all controls.

9. **Power outage.** In the event of a power failure during use of the bandsaw, turn off all switches to avoid possible sudden start up once power is restored.

10. **Work area hazards.** Keep the area around the bandsaw clean from oil, tools, chips. Pay attention to other persons in the area and know what is going on around the area to ensure unintended accidents.

11. **Workpiece Handling.** Workpieces must be supported with table, vice, roller conveyor/stands, or other support fixtures. Unsupported workpieces may cause the machine to tip over and fall. Flag long pieces of material to avoid tripping hazards. Never hold a workpiece with your hands during the cut process.

12. **Hearing protection and hazards.** Always wear hearing protection as noise generated from bandsaw blade and workpiece vibration, material handling, and power transmission can cause permanent hearing loss over time.

13. **Hot surfaces.** Workpieces, machine surfaces and chips become hot due to friction and can burn you.

14. **Starting position.** Never turn the bandsaw on when the blade is resting on the workpiece.

15. **Guards.** Do not operate bandsaw without the blade guard in place or with the doors open.

16. **Call for help.** If at any time you experience difficulties, stop the machine and call you nearest branch service department for help.

PLANT SAFETY PROGRAM

NEW MACHINERY HAZARD IDENTIFICATION, ASSESSMENT & CONTROL

Metal Cutting Bandsaw

Developed in Co-operation Between A.W.I.S.A and Australia Chamber of Manufactures
This program is based upon the Safe Work Australia, Code of Practice - Managing Risks of Plant in the Workplace (WHSA 2011 No10)

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

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Authorised and signed by:
Safety officer:.....
Manager:.....

Revised Date: 12th March 2012