HAFCO
METALMASTER

Edition : 1.0
Date: (03/25)

Instruction Manual

SWIVEL HEAD METAL CUTTING BAND SAW
BS-7

Order Code: (B007)

MACHINE DETAILS

MACHINE	**Metal Cutting Band Saw**
MODEL NO.	BS-7
SERIAL NO.	
DATE OF MANF.	

IMPORTED BY

AUSTRALIA

HARE&FORBES MACHINERYHOUSE

www.machineryhouse.com.au

NEW ZEALAND

MACHINERYHOUSE

www.machineryhouse.co.nz

NOTE:
This manual is only for your reference. At the time of the compiling of this manual every effort to be exact with the instructions, specifications, drawings, and photographs of the machine was taken. Owing to the continuous improvement of the HAFCO METALMASTER machine, changes may be made at any time without obligation or notice. Please ensure the local voltage is the same as listed on the specification plate before operating any electric machine.

SAFETY SYMBOLS:
The purpose of safety symbols is to attract your attention to possible hazardous conditions
⚠ WARNING Indicates a potentially hazardous situation causing injury or death
⚠ CAUTION Indicates an alert against unsafe practices.
Note: Used to alert the user to useful information

NOTE:
In order to see the type and model of the machine, please see the specification plate. Usually found on the back of the machine. See example (Fig.1)

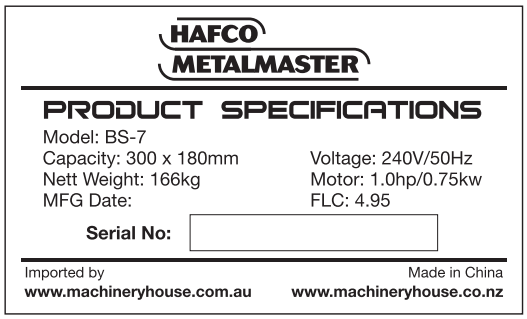


FIG.1

CONTENTS

SPECIFICATIONS

Order Code	B007
MODEL	**BS-7**
Operation Type	Fixed Head
Round @ 90° - Capacity	180mm
Round @ 45° - Capacity	110mm
Rectangle (W x H) @ 90°	180 x 300mm
Rectangle (W x H) @ 45°	110 x 180mm
Coolant System	Yes
Table Working Height (mm)	550
Cutting Head Beam Type	Manual
Cutting Head Beam Return	Manual Return
Cutting Head Down Feed Control	Hydraulic
Vice Clamping Fixture	Manual
Blade Steps / Speeds	34, 41, 59, 98m/min
Blade Size (L x W x T)	2362 x 19 x 0.8mm
Motor Power	0.75kW / 1 hp
Voltage / Amperage	240V / 10Amp
Nett Weight	166kg

WARNING

Always check the capacity of the machine. Exceeding the capacity of the machine may result in sudden breakage that ejects dangerous metal debris at the operator or bystanders

INCLUDED ACCESSORIES

Vertical cutting table attachment
1 x blade

IDENTIFICATION

Become familiar with the names and locations of the controls and features shown below to better understand the instructions when mentioned later in this manual.

A	Blade Tension Handle	**G**	Feed Rate Control Knob
B	Blade Tracking Controls	**H**	Feed Lever ON/OFF Valve
C	Coolant Tap	**I**	Coolant Pump ON/OFF Switch
D	Motor ON/OFF Switch	**J**	Length Stop
E	Speed Pulley Cover	**K**	Vice Handle
F	Motor 1hp	**L**	Blade Guides

GENERAL WORKSHOP SAFETY

WARNING! When using electric machines basic safety precaution should always be followed to reduce the risk of fire, electric shock and personal injury, including the following. Read all these instructions before attempting to operate this product and save these instructions.

1 - Keep work area clear.
- Cluttered areas and benches invite injuries.

2 - Consider work area environment.
- Do not expose tools to rain.
- Do not use tools in damp or wet locations.
- Keep work area well lit.
- Do not use tools in the presence of flammable liquids or gases.

3 - Guard against electric shock.
- Avoid body contact with earthed or grounded surfaces.
- Make certain the machine is properly grounded.

4 - Keep other persons away.
- Do not let persons, especially children, not involved in the work touch the tool or the extension cord and keep them away from the work area.

5 - Store idle tools.
- When not in use, tools should be stored in a dry locked-up place, out of reach of children.

6 - Do not force the tool.
- It will do the job better and safer at the rate for which it was intended.

7 - Use the right tool.
- Do not force small tools to do the job of a heavy duty tool.
- Do not use tools for purposes not intended; for example do not use circular saws to cut tree limbs or logs.

8 - Dress properly.
- Do not wear loose clothing or jewellery, they can be caught in moving parts.
- Non-skid footwear is recommended when working outdoors.
- Wear protective hair covering to contain long hair.

9 - Use protective equipment.
- Use approved safety glasses/face shields while using this machine.
- Use face or dust mask if cutting operations create dust.

10 - Connect dust extraction equipment.
- If device is provided for the connection of dust extraction and collecting equipment, ensure these are connected and properly used.

11 - Do not abuse the cord.
- Never yank the cord to disconnect it from the socket.
- Keep the cord away from heat, oil and sharp edges.

12 - Secure work.
- Where possible use clamps or a vice to hold the work. It is safer than using your hand.

13 - Do not over reach.
- Keep proper footing and balance at all times.

14 - Maintain tools with care.
- Keep cutting tools sharp and clean for better and safer performance.
- Follow instructions for lubricating and changing accessories.
- Inspect tool cords periodically and if damaged have them repaired by an authorized service facility.
- Inspect extension cords periodically and replace if damaged.
- Keep handles dry, clean and free from oil and grease.

15 - Disconnect tools.
- When not in use, before servicing and when changing accessories such as blades, bits and cutters, disconnect tools from the power supply.

16 - Remove adjusting keys and wrenches.
- Form the habit of checking to see that keys and adjusting wrenches are removed from the tool

before turning it on.

17 - Avoid unintentional starting.
- Ensure switch is in ‘off’ position when plugging in.

18 - Use outdoor extension leads.
- When the tool is used outdoors, use only extension cords intended for outdoor use and so marked.

19 - Stay alert.
- Watch what you are doing, use common sense and do not operate the tool when you are tired.

20 - Check damaged guards and parts.
- Before further use of tool. It should be carefully checked to determine that it will operate properly and perform its intended function.
- Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting and any other conditions that may affect its operation.
- A guard or part that is damaged should be properly repaired or replaced by an authorized service center unless otherwise indicated in this instruction manual.
- Have defective switches replaced by an authorized. service center.
- Do not use the tool if the switch does not turn on or off.

GENERAL WORKSHOP SAFETY cont.

21 ⚠WARNING - The use of any accessory or attachment other than one recommended in this instruction manual may present a risk of personal injury.

22 - Have your tool repaired by a qualified person.

- This electric tool complies with the relevant safety rules. Repairs should only be carried out by qualified persons using original spare parts, otherwise this may result in considerable danger to the user.

23 - Never stand on tool. Serious injury could occur if the tool is tipped or if the cutting tool is accidentally contacted.

24 - As to the power supply, the error of the voltage should be within +/-10%V, the rate error should be within +/-1 Hz.

25 - Operating condition

The temperature of the environment should range from 5° to 40°.

The relative humidity should be within 30%~95%.

The altitude should not be higher than 1OOOM.

In transiting and storing condition, the machine should be kept within the temperature between -25° and 55°.

26 - The power supply must be installed with under-voltage protecting facility.

27 - The power supply must be installed with over-voltage protecting facility.

28 - Guarding gloves, glasses and earplugs of PPE is needed when operating the saw.

29 - The oil in use should be void of any poison and danger.

30 - Before any maintenance the power plug has to be removed from the supply socket.

31 - WARNING: Attach all protective parts before operating this saw.

BAND SAW SAFETY

1. ⚠WARNING Keep machine guards in place at all times when the machine is in use. If removed for maintenance purposes, use extreme caution and replace the guards immediately.
2. Do not over reach. Maintain a balanced stance at all times so that you do not fall or lean against blades or other moving parts.
3. Replace warning labels if they become obscured or removed.
4. Give your work undivided attention. Looking around, carrying on a conversation, and “horse-play” are careless acts that can result in serious injury. Never leave tool running unattended. Turn power off. Don’t leave tool until it comes to a complete stop.
5. Always keep hands and fingers away from the blade when the machine is running.
6. Never hold the material with the saw in the horizontal position. Always use the vice and clamp it securely.
7. Read and understand warnings posted on the machine.
8. Keep the belt guard and wheel covers in place and in working order.
9. Always provide adequate support for long and heavy material.
10. In urgent circumstances, the oil jar should be closed immediately to keep away from accident.
11. Never clean the saw blade or band wheel of a band saw using a hand-held brush or scraper whilst the saw blade is in motion.
12. Adjust and position the blade guide arm before starting the cut. Keep blade guide arm tight. A loose blade guide arm will affect sawing accuracy. Make sure that blade tension and blade tacking are properly adjusted. Recheck blade tension after initial cut with a new blade. To prolong blade life always release blade tension at the end of each workday. Make sure blade speed is set correctly for material being cut.
13. Check coolant daily: low coolant level can cause foaming and high blade temperatures. Dirty or weak coolant can clog pump, cause crooked crust, low cutting rate and permanent blade failure. Dirty coolant can cause the growth of bacteria with ensuing skin irritation.
14. When cutting magnesium never use soluble oils or emulsions (oil-water mix) as water will greatly intensify any accidental magnesium chip fire. See your industrial coolant supplier for specific coolant recommendations when cutting magnesium.
15. Stop the machine before removing workpieces.
16. Make all adjustments with the power off. Before any maintenance the power plug has to be removed from the supply socket.
17. Disconnect machine from power source when making repairs. Shut off power and clean the band saw and work area before leaving the machine. Clear away the waste residue so as to avoid accidental injury after working.
18. The machine can only be used for vertical cutting when the vertical table attachment is fitted.

OPTIONAL SAFETY ACCESSORIES.

There are two optional safety accessories. Please read in detail from this clause about the safety use of these devices as following.

1. Optional positive mode interlock for pulley cover: if the cutting speed needs to be changed very often, you must choose this option.
2. Optional handle operated power disconnection device: if your machine is equipped with this option, for some situation please disconnect power through this device. Otherwise, disconnect power according to the instruction in the clause of operation.

UNPACKING

This machine was carefully packaged for safe transport. When unpacking, separate all enclosed items from packaging materials and inspect them for shipping damage. If items are damaged, please contact your distributor.

NOTE: Save all the packaging materials until you are completely satisfied with the machine and have resolved any issues with the distributor, or the shipping agent.

When unpacking, check the packing list to make sure that all parts shown are included. If any parts are missing or broken, please contact your distributor.

CLEAN - UP

The unpainted surfaces of the machine have been coated with a waxy oil to protect them from corrosion during shipment. Remove the protective coating with a solvent cleaner or a citrus based degreaser.

Optimum performance from your machine will be achieved when you clean all moving parts or sliding contact surfaces that are coated with rust preventive products.

It is advised to avoid chlorine based solvents, such as acetone or brake parts cleaner, as they will damage painted surfaces and strip metal should they come in contact. Always follow the manufacturer's instructions when using any type of cleaning product.

LIFTING INSTRUCTIONS

⚠ WARNING ***This machine is extremely heavy. Serious personal injury may occur if safe moving methods are not followed. To be safe, you will need assistance and power equipment when moving the shipping crate and removing the machine from the crate.***

On the day that the machine arrives, make sure that a forklift or lifting device, with sufficient capacity is available to unload the machine from the vehicle. Ensure access to the chosen site is clear and that doors and ceilings are sufficiently high and wide enough to receive the machine.

WARNING.

Make sure everyone is away from the load before hoisting. The load must be under control when lowering loads or when the load is suspended. Rigging and crane operation must be carried out by persons with approved qualifications.

CUTTING SPECIFICATIONS

Cutting Capacity	**Ø180mm Round 180 x 300mm Rectangle**
Blade Speeds	**34-41-59-98 MPM 50 HZ 41-49-69-120 MPM 60HZ**
Blade Size	**2362 x 19 x 0.8mm**

Fig. 1

ASSEMBLY

Caution: Make sure the band saw is steady while temporarily supported.

1. With an assistant helping to stabilize the load, lift the machine just high enough to clear the pallet.
2. Remove the pallet, and then place wooden blocks under the machine base so it will be supported 100mm off the ground, then lower the machine.
3. Slide the axles through the holes in the bottom of the cabinet.
4 Slide a flat washer onto each end of axle, followed by the wheel and another washer. Secure the wheels with cotter pins.
5. With help of an assistant, remove band saw from the blocks.
6. Insert the work length stop rod (1) through the hole in the base and lock in place with hex nut and washer. (Fig 2).
7. Slide the work length stop over the rod, then tighten the screw (3) to secure it. (Fig. 2)
8. Slide the cylinder bar (1, Fig. 3) into the base and tighten. Then slide the feed cylinder (3) onto the bar and tighten the nut (4). Slide the screw (2) into the cylinder and then tighten. (Fig. 3)

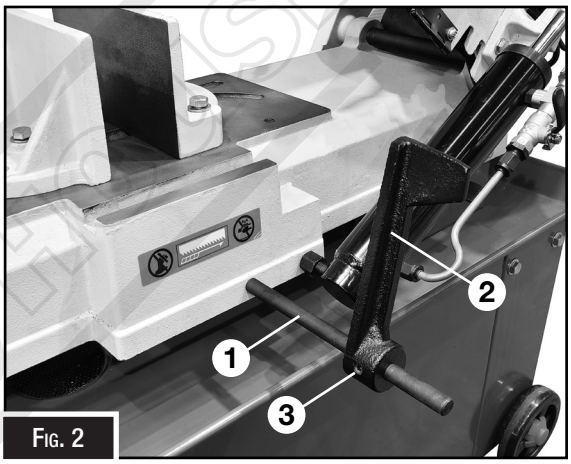


Fig. 2

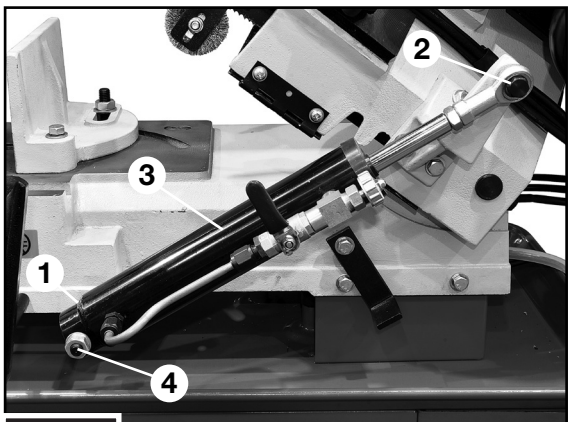


Fig. 3

COOLANT TANK PREPARATION

⚠WARNING

Disconnect band saw from the power source before making any repairs or adjustments!

Failure to comply may cause serious injury!

Using a water-soluble coolant will increase cutting efficiency and prolong blade life. Do not use black cutting oil as a substitute. Change cutting oil often and follow manufacturers instructions as to its uses and precautions.

1. Disconnect machine from the power source.
2. Remove the coolant return hose from the tank cover.
3. Slide the tank out of saw base and carefully remove the lid containing coolant pump.
4. Fill tank to approximately 80% of capacity.
5. Place lid back onto the tank and place the tank assembly back into the base.
6. Replace the return hose back into the hole in the tank lid.

HYDRAULIC FEED OPERATION

The hydraulic feed selector is used to control the blade feed rate and to lock the arm in the vertical position. To increase the feed rate, turn knob (1, Fig.4) counter-clockwise. To decrease the feed rate, turn the knob (1) clockwise. To turn off the flow of hydraulic fluid, turn lever as in figure 4. To turn the hydraulic cylinder on, raise lever (2) to the on + position.

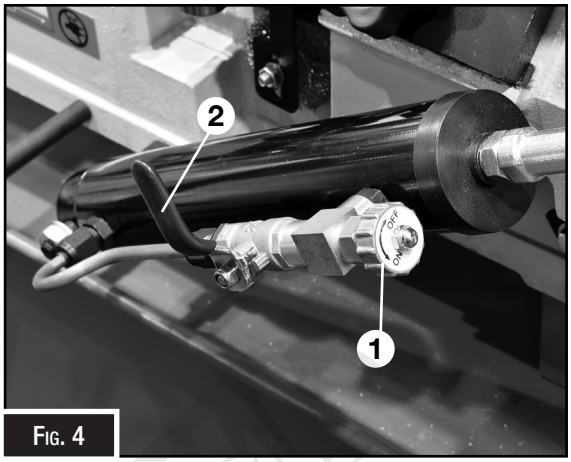


Fig. 4

Prior to operation

1. Check that the blade tooth direction matches diagram on the saw body.
2. Check to see that the blade is properly seated on the wheels and proper tension has been applied.
3. Set the blade guide roller bearings snug against blade. See “Adjusting blade guide bearings” for more detail.
4. Check for slight clearance between back up rollers and back of blade.
5. Position the adjustable blade guide as close to work as possible.
6. Select proper speed and feed rate for material being cut.
7. Material to be cut must be held securely in the vice.
8. Check to see that coolant level is adequate.
9. Do not start cut on a sharp edge. File it off first.
10. Keep machine lubricated. See “lubrication” section.


Fig. 5

Changing blade speed

1. Disconnect machine from the power source.
2. Loose motor plate lock bolt (1, Fig.6).
3. Loose motor plate slide bolt (2) until belt can be moved on the pulleys.
4. Move belt to the desired pulley combination. (Fig. 5)
5. Tighten motor plate slide bolt (2) to re-tension belt.
6. Tighten motor plate lock bolt (1).
7. Connect machine to the power source.

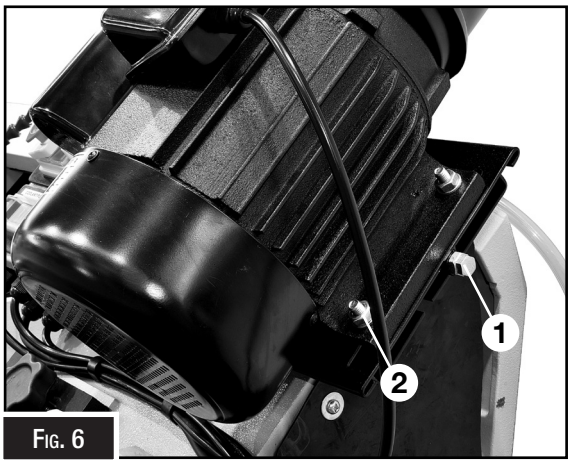


Fig. 6

CAUTION

Before attempting this feature, disconnect the machine from the power supply to avoid injury to the operator from accidental startup or damage to the machine

ADJUSTING BLADE GUIDES

1. Disconnect machine from the power source.
2. Loose knob (1, Fig. 7) and knob (2). Slide blade guide assemblies as close as possible to the material without interfering with the cut. (1. Fig.7A)
3. Tighten knob (1) and knob (2) and connect machine to the power source.

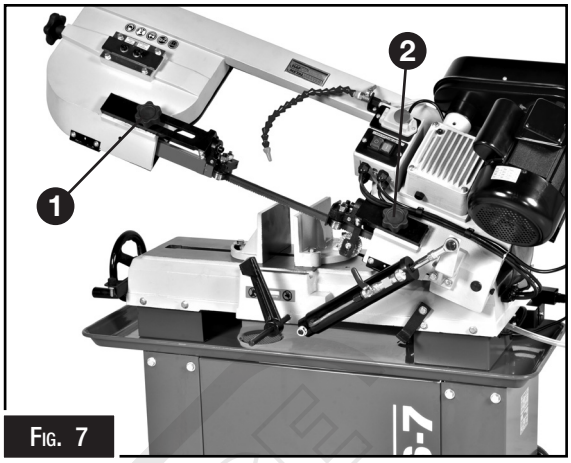


Fig. 7

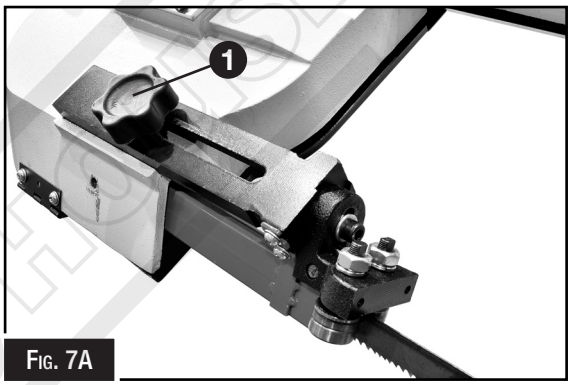


Fig. 7A

WARNING.

Blades are very sharp. If not careful serious injury can result from touching the blades with bare hands. Leather work gloves should be worn when handling these blades.

VICE ADJUSTMENT

⚠WARNING

Do not make any adjustments or load/unload material from vice while machine is running!

Failure to comply may cause serious injury!

To set the vice for O-45° degree cutting:

1. Remove bolt and nut assemblies (C, Fig. 8).
2. Position vice and re-install as pictured in (Fig. 9). Pay particular attention to bolt hole location.
3. Set vice to desired angle, re-install nuts and bolts, and tighten nut and bolt assemblies.
4. Adjust movable vice parallel to fixed vice by loosening bolt (A, Fig.8), adjusting to parallel, and tightening bolt.

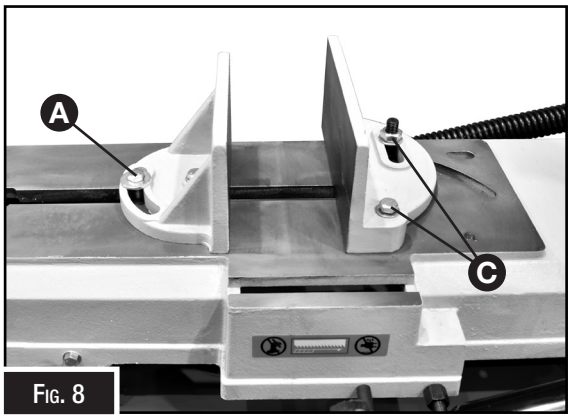


Fig. 8

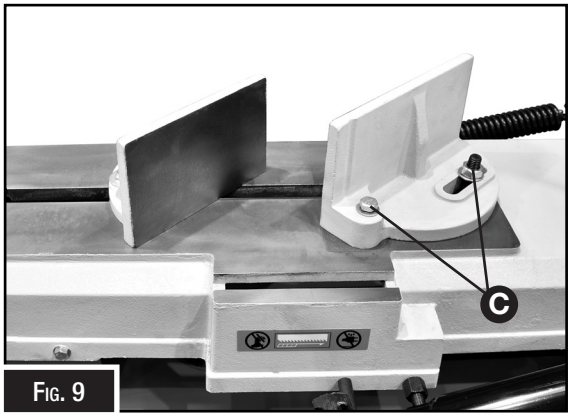


Fig. 9

To set vice for maximum width of stock cutting:

1. Remove nut and bolt assemblies.
2. Position vice and re-install bolt assemblies as pictured in (Fig. 8).

ADJUSTING BLADE TENSION

⚠WARNING

Disconnect machine from the power source!

Blades are sharp! Use extra care when removing, installing or adjusting! Failure to comply may cause serious injury!

Blade tension is important to the proper operation of the saw. Proper blade tension is 700 to 900 kgs, per square inch as measured on a blade tension gauge.

To set the blade tension without the use of a blade tension gauge:

1. Install blade between wheel and insert blade between bearings on blade guides (A, Fig. 11).
2. Tension blade slightly to remove any sag in blade between blade wheels.
3. Turn blade tension knob (1, Fig. 10) one and three quarter to two revolutions clockwise. This equals approximately 800kgs of blade tension.

⚠CAUTION

Do not over tighten blade. This may cause blade to stretch and warp.

4. After blade has been completely installed, close covers (B, Fig. 12), connect to the power source, and run saw for two to three minutes so blade can seat properly.
5. Disconnect machine from the power source. Open cover and loosen blade just until it begins to sag.
6. Tighten blade until it becomes straight between blade wheel and all sag has been eliminated.
7. Tighten blade by turning blade tension wheel (1, Fig. 11) two full revolutions. Blade is now properly tensioned and ready for use.
8. Close covers (B, Fig. 12) and connect machine to the power source.

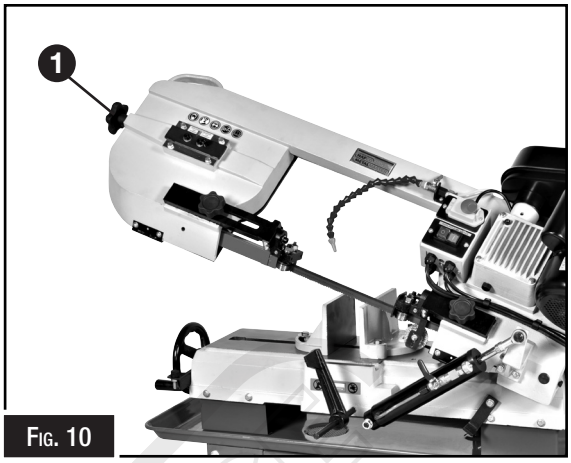


Fig. 10

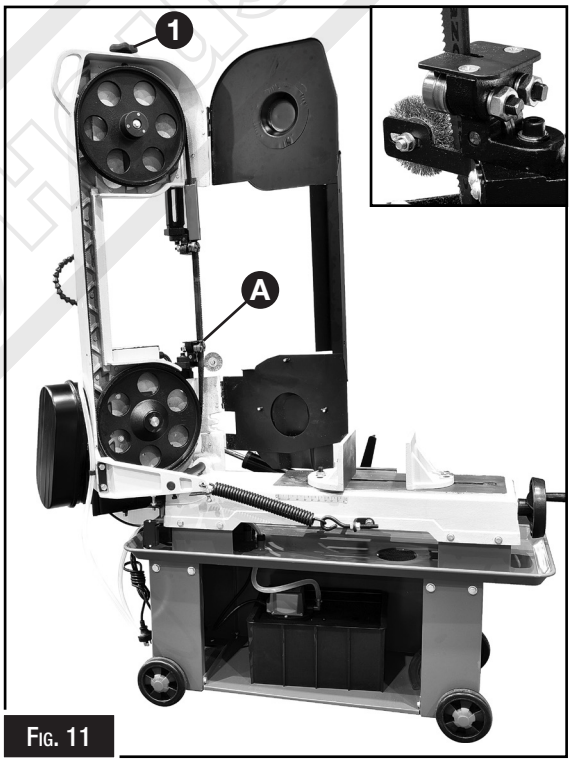


Fig. 11

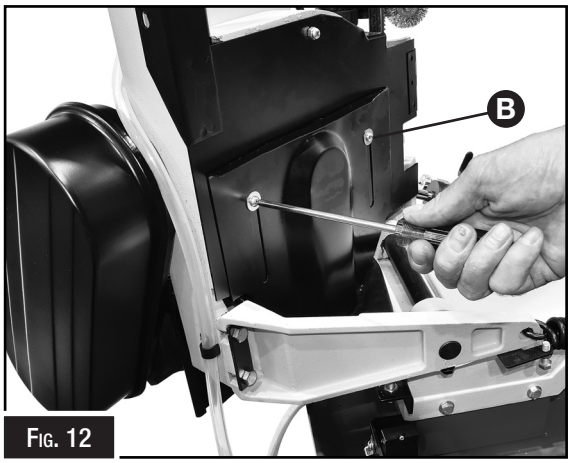


Fig. 12

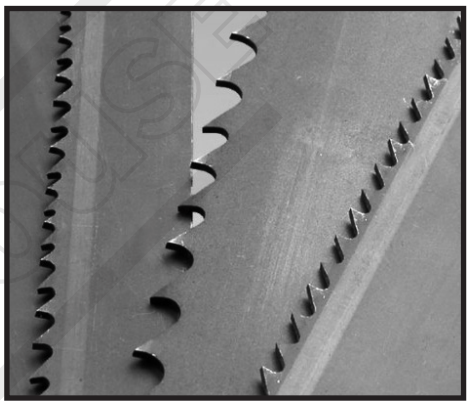
BLADE SELECTION CHARTS

Band saw tooth size is determined by the size of the cross section to be cut. In general cutting thinner sections requires more teeth per inch, thicker sections require coarser pitches, or less teeth per inch.

To select an appropriate tooth size please refer to the table immediately below unless material to be cut is a tube, in which case refer to the larger table below. For general purpose cutting use a constant pitch blade, for more aggressive production cutting of harder to cut materials use a variable pitch blade.

SOLID SECTION

Section Size (mm)	Constant Pitch (TPI)	Variable Pitch (TPI)
Up to 10	24 or 18	14/18 or 10/14
10 - 15	14	8 - 12
16 - 30	10	6 - 10
31 - 50	8	5 - 8
51 - 80	6	4 - 6
81 - 120	4	3 - 4
121 - 200	3	1 - 3
Over 200	2 or 1.25	1.4 - 2 or 0.8 - 1.3



TUBE SECTION

Wall Thickness (mm)	Outside diameter of tube or maximum profile section length (mm)												
	20	40	60	80	100	120	150	200	300	500	600	700	800
2	14	14	14	14	14	14	10-14	10-14	8-12	8-12	6-10	5-8	5-8
3	14	14	10-14	10-14	10-14	10-14	8-12	8-12	6-10	6-10	5-8	5-8	5-8
4	14	14	10-14	10-14	8-12	8-12	6-10	6-10	5-8	5-8	4-6	4-6	4-6
5	14	10-14	10-14	8-12	8-12	6-10	6-10	5-8	5-8	4-6	4-6	4-6	4-6
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10		8-12	8-12	6-10	6-10	5-8	5-8	4-6	4-6	3-4	3-4	3-4	3-4
12		8-12	6-10	6-10	5-8	5-8	4-6	4-6	3-4	3-4	3-4	3-4	2-3
15			6-10	5-8	5-8	4-6	4-6	4-6	3-4	3-4	3-4	2-3	2-3
20				5-8	4-6	4-6	4-6	3-4	3-4	2-3	2-3	2-3	2-3
30					4-6	4-6	3-4	3-4	3-4	2-3	2-3	2-3	2-3
50						3-4	3-4	3-4	2-3	2-3	2-3	2-3	2-3
75							2-3	2-3	2-3	2-3	2-3	1.4-2	1.4-2

CAUTION!

It must be determined by the operator that the materials being processed through the machine are NOT potentially hazardous to operator or personnel working nearby.

CHANGING BLADES

⚠WARNING

Never operate this saw unless all blade guards are installed and in proper working order!

Never adjust blade brush while the machine is running! Failure to comply may cause serious injury!

⚠CAUTION

This machine is designed and intended for use with blades that are 19mm wide by 0.9mm thick by 2360mm long.

Use of blades with different specifications may cause inferior performance.

1. Disconnect machine from the power source.
2. Raise saw arm to vertical position and lock in place by turning hydraulic cylinder off.
3. Remove red blade guard assembly (A, Fig. 13) by removing two screws (B).

⚠WARNING

It is essential this guard be installed after the new blade has peen fitted!

Failure to comply may cause serious injury!

4. Remove brush assembly (C, Fig. 13) by removing two screws (D).
5. Loosen blade tension by turning blade tension knob counter-clockwise (1, Fig. 14).
6. Carefully remove old blade. Caution: blade teeth are sharp. Handle with care.
7. Install new blade by placing blade between blade guides first (Fig. 14). Make sure blade teeth face the same direction as indicated on the label found on the saw arm.
8. Place blade around both wheels. Make sure the blade edge rests against the wheel flange on both wheels.
9. Turn blade tension knob (1, Fig.14) clockwise to tension blade. Do not over tension. See section titled “Adjusting Blade Tension”.
10. Close blade cover door (Fig. 15) and secure with lock knobs.
11. Attach red blade guard and brush assembly.
12. Connect machine to the power source.
13. Run saw and make sure blade is tracking properly.

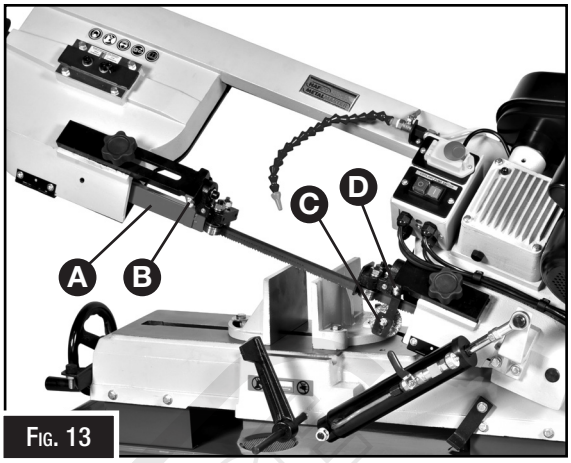


Fig. 13

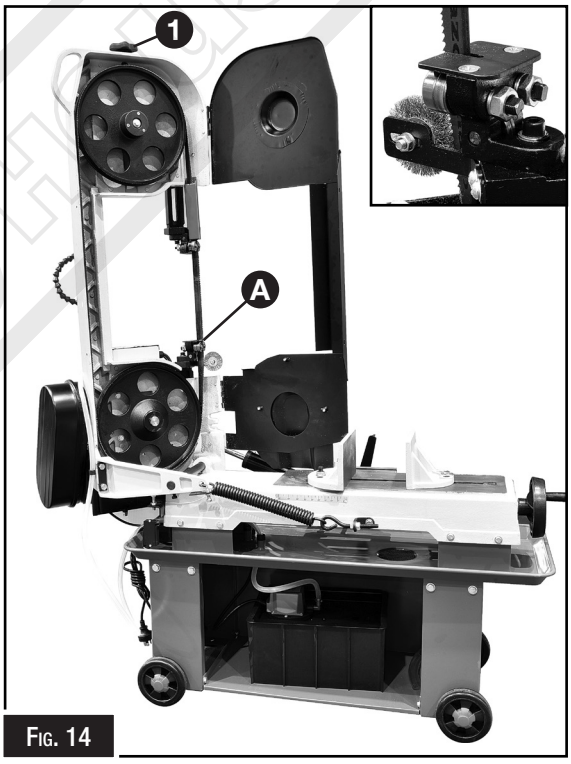


Fig. 14

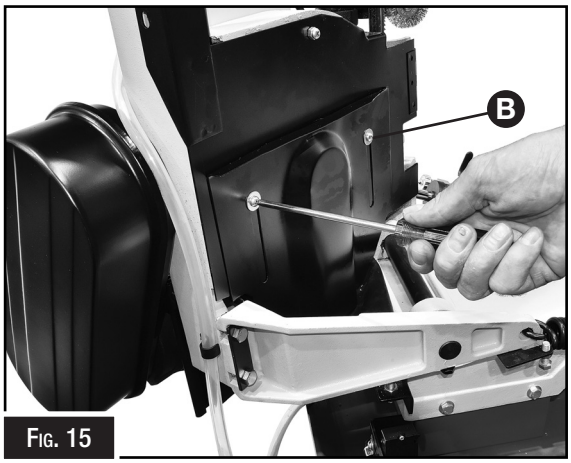


Fig. 15

VERTICAL CUTTING TABLE - SETUP

Vertical cutting is only achievable when installing the Vertical Cutting Table when arm is in the most upright position:

1. Disconnect machine from the power source.
2. Turn hydraulic cylinder valve on and place saw arm in horizontal position.
3. Turn feed rate valve on hydraulic cylinder counter-clockwise until it stops.
4. Raise the Arm fully up to 90 degrees.
5. Unscrew 2 screws (A) from the blade cutting platen table. Fig. 23.
6. Fit the Vertical Cutting Table over the platen table and fix using the 2 screws (A).
6. Fit Vertical Cutting Table support bracket under the Vertical Cutting Table as shown in fig 23. by loosening the guide knob (B) to slide the bracket into place then fix to the Vertical cutting table via the top mounting hole using supplied screw (C). Lastly re-tighten the guide knob (B) to lock in place.

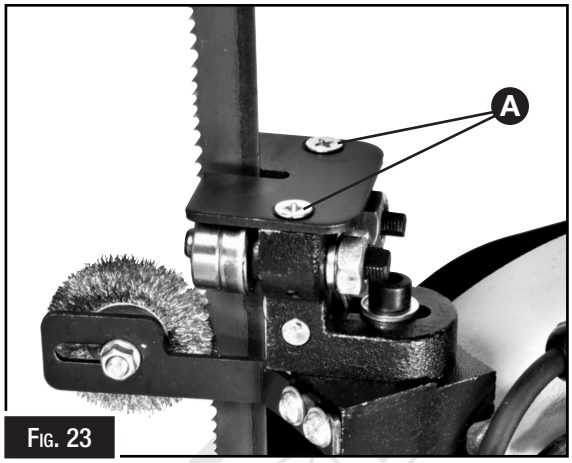


Fig. 23

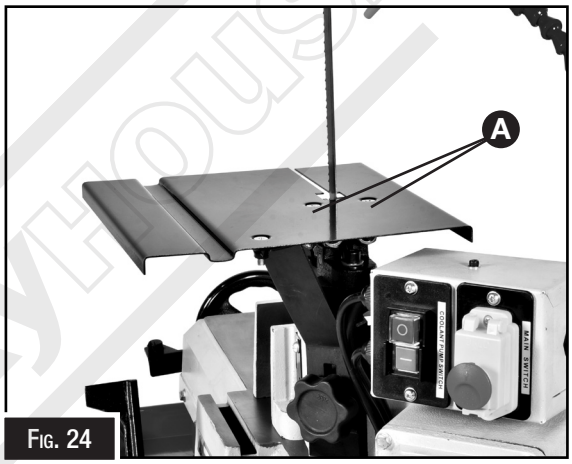


Fig. 24

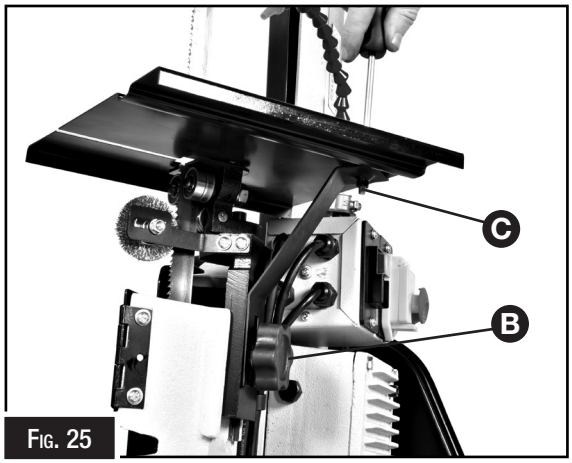


Fig. 25

VERTICAL CUTTING TABLE - parts

ADJUSTING BLADE SQUARE TO TABLE

1. Disconnect machine from the power source.
2. Place a machinist's square on the table next to the blade as pictured in (Fig. 16).
3. Check to see blade makes contact with square along the entire width of the blade.
4. If adjustment is necessary, loosen bolts (A, Fig, 16) and rotate blade guide assemblies slightly in the same direction until blade makes contact with the square along it's entire width.
5. Tighten bolts (A Fig. 17).
6. Connect machine to the power source. Note: if adjustment to square blade to table is necessary, be sure to check blade adjustments again.

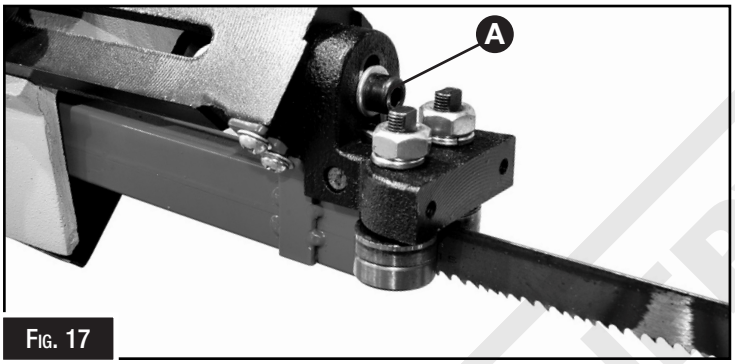


Fig. 17

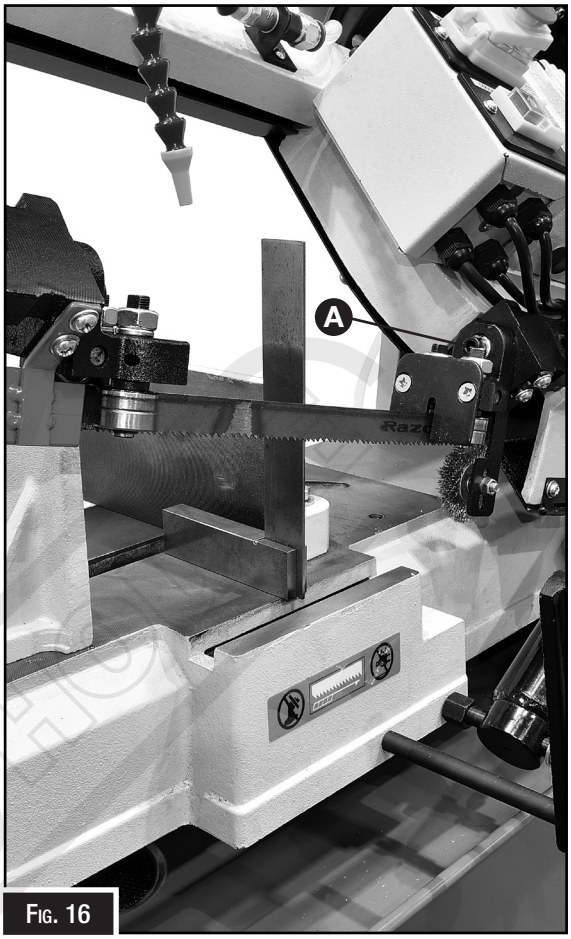


Fig. 16

ADJUSTING BLADE SQUARE TO VICE

1. Disconnect machine from the power source.
2. Place a machinist's square as pictured in (Fig.18) square should lie along entire length of vice and blade without a gap.
3. If adjustment is necessary, loosen bolts holding vice and adjust vice so that square lines up properly. Tighten bolts.
4. Connect machine to the power source.

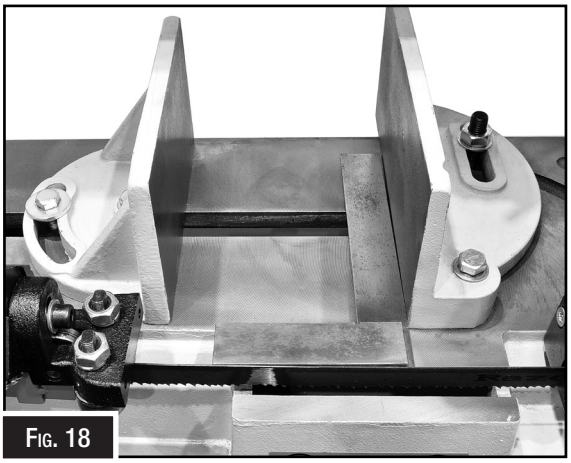


Fig. 18

ADJUSTING BLADE TRACKING

⚠WARNING

Blade tracking adjustment requires running the saw with the back cover open. This adjustment must be completed by qualified persons only!

Failure to comply may cause serious injury!

Note: Before making any tracking adjustments, try a new blade. Warped blades will not track.

Blade tracking has been set at the factory and should not require adjustment. If a tracking problem occurs, adjust the machine as follows:

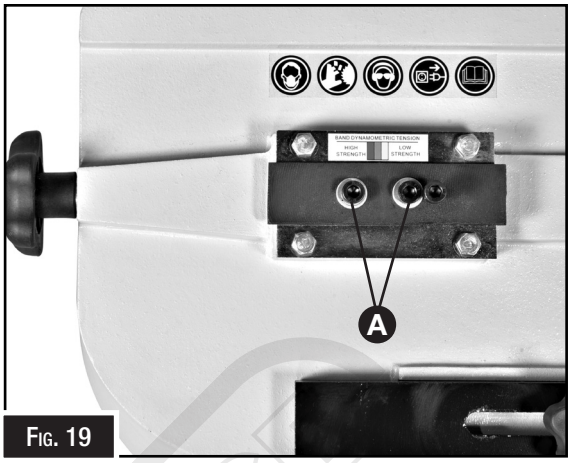


Fig. 19

1. Move saw arm to the vertical position and lock in place by shutting off the hydraulic cylinder valve.
2. Confirm that blade tension is set properly. To adjust, see section titled “Adjusting Blade Tension”.
3. Open back cover by loosening lock screws.
4. Run saw and observe blade. Blade should run next to but not tightly against wheel flange.
5. Loosen bolts (A, Fig.19).
6. Turn set screw (B) while observing blade tracking on wheel. Turn set screw clockwise to track blade closer to the wheel flange. Turn set screw counter-clockwise to track blade away from the wheel flange.
7. Once tracking is set, tighten bolts (A, Fig.19).

ADJUSTING BLADE GUIDE BEARINGS

⚠CAUTION

This machine is designed and intended for use with blades that are 19mm wide by 0.9mm thick by 2360mm long. Use of blades with different specifications may cause inferior performance.

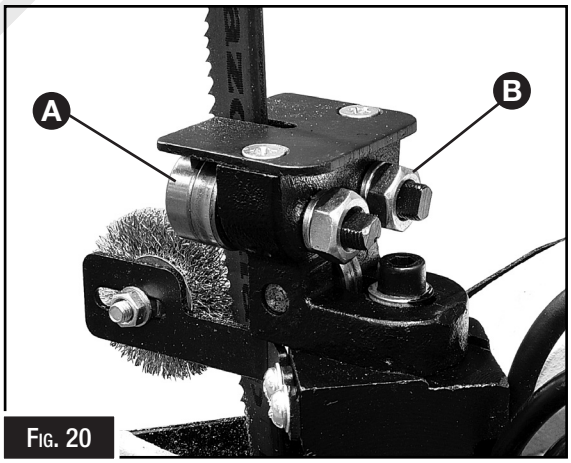


Fig. 20

1. Disconnect machine from the power source.
2. Raise arm to vertical position and lock in place by turning off the hydraulic cylinder valve.
3. Loosen hex cap screw (A, Fig. 20) and adjust assembly so that back roller bearing is approximately 0.08~0.12mm from the back of the blade.
4. Turn nut (B) to adjust eccentric bearing snug to the blade. Blade should still move up and down freely when grasped as in (Fig. 20). Warning! Make sure power is disconnected and hands are protected before handling blade. Be sure that blade teeth do not interfere with the roller bearings:
5. Repeat for other blade guide assembly.
6. Connect machine to the power source.

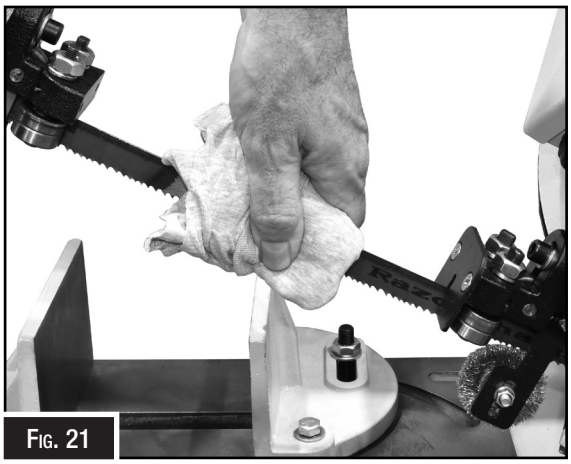


Fig. 21

ADJUSTING BOW WEIGHT

Bow weight is one of the most important adjustments of the saw. If the bow weight is not set properly, one can expect poor performance, crooked cuts, tooth stripping, stalling, and the blade popping off the blade wheels. The hydraulic feed rate unit will not compensate for improper bow weight. Bow weight has been set at the factory and should not need adjustment. If adjustment is necessary:

1. Disconnect machine from the power source.
2. Turn hydraulic cylinder valve on and place saw arm in horizontal position.
3. Turn feed rate valve on hydraulic cylinder counter-clockwise until it stops.
4. Place a fish-type scale under blade tension handle and lift the saw arm. Scale should indicate approximately 5-6kgs.
5. Adjust tension to approximately 5-6kgs. By turning bolt (A, Fig. 22).
6. Connect machine to the power source.

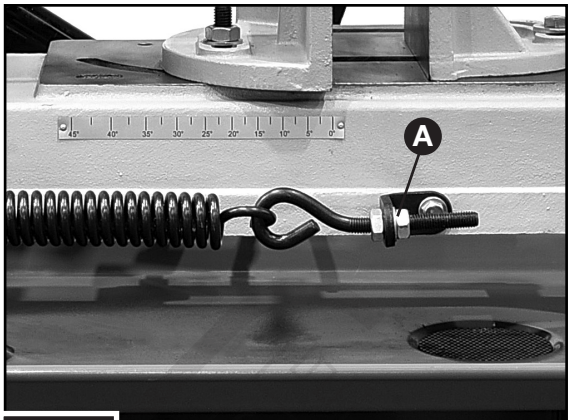


Fig. 22

WARNING

The machine is the sole responsibility of the owner for its safe use. This responsibility includes but is not limited to proper installation in a safe environment, personnel training, proper inspection and maintenance, manual availability and comprehension. The manufacturer will not be held liable for injury or property damage from negligence, improper training, machine modifications or misuse.

CAUTION

Some service processes should only be carried out by professional maintenance personnel. If you are unsure of your ability to complete a task, please contact your local Metalmaster service engineer.

LUBRICATION

Ball bearings on the blade guide assemblies and the blade wheels are permanently sealed and require no lubrication.

Lightly lubricate vice screw with #2 tube grease. Change gear box oil after the first 90 days of operation. There after, change every six months .

To change gear box oil:

1. Disconnect machine from the power source.
2. Place saw arm in the horizontal position.
3. Remove screws (A, Fig. 26) from the gearbox and remove cover plate and gasket.
4. Draw off the oil from gearbox.
5. Place the saw arm in the horizontal position again. Wipe out remaining oil with a rag.
6. Fill gearbox with ~100ml of 90W gear oil.
7. Replace gasket and cover. Fasten cover with screws.
8. Connect machine to the power source.

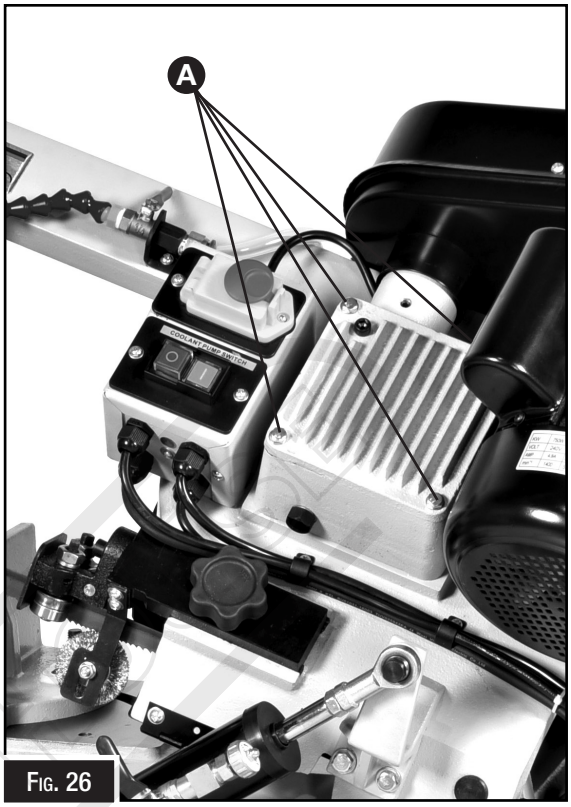


FIG. 26

MAINTENANCE

⚠WARNING

Disconnect machine from the power source before making any repairs or adjustment!

Failure to comply may cause serious injury!

1. Keep all surfaces clean and free of rust, slag, chips, and coolant build-up.
2. Do not use compressed air to clean band saw. Compressed air may force chips into the guide bearings and other critical areas of the saw.
3. Use a small paintbrush or parts cleaning brush to remove metal particles.
4. Wipe saw down with a clean, dry cloth and oil all unpainted surfaces with light machine oil.
5. Keep blade guides clean and free of metal chips.
6. Check guide bearings frequently to make sure they are properly adjusted and turning freely.

CHIP CLEANING BRUSH

⚠WARNING Do not attempt to adjust blade brush with the machine running! Adjust only when the machine's power cord has been removed from the power source!

Failure to comply may cause serious injury!

It is important that the blade cleaning brush be properly adjusted and kept in good working order. Replace the brush if it becomes damaged or worn out. Blade life will be shortened severely if the brush is allowed to go out of adjustment, becomes damaged, or is worn out.

TROUBLE SHOOTING CHART

SYMPTOM	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
Excessive blade breakage	1. Incorrect blade tension 2. Incorrect speed or feed 3. Material loose in vice 4. Blade rubs on wheel flange 5. Teeth too coarse for material 6. Teeth in contact with work before saw is started 7. Misaligned guides 8. Blade too thick for wheel diameter 9. Cracking at weld	1. Adjust to where blade just does not slip on wheel 2. Check machinist handbook 3. Clamp work securely 4. Adjust wheel alignment 5. Check machinist handbook for recommended blade type 6. Place blade in contact work after motor is started 7. Adjust 8. Use thinner blade 9. Make longer annealing cycle
Premature blade dulling	1. Teeth too coarse 2. Too much speed 3. Inadequate feed pressure 4. Hard spots or scale in/on material 5. Work hardening of material (especially stainless steel) 6. Blade installed backwards 7. Insufficient blade tension	1. Use finer tooth blade 2. Try next lower speed 3. Decrease spring tension on side of saw 4. Reduce speed increase feed pressure (scale) increase feed pressure (hard spots) 5. Increase feed pressure by reducing spring tension 6. Remove blade twist inside out and reinstall blade 7. Increase tension to proper level
Bad cuts (crooked)	1. Work not square 2. Feed pressure too great 3. Guide bearing not adjusted properly 4. Inadequate blade tension 5. Blade guides spaced out too much 6. Dull blade 7. Speed incorrect 8. Blade guide bearing assembly loose 9. Blade guide bearing assembly loose 10. Blade tracks too far away from wheel flanges	1. Adjust vice to be square with blade always clamp work tightly in vice 2. Reduce pressure by increasing spring tension on side of saw 3. Adjust guide bearings to 001 greater than max, thickness, including weld of the saw 4. increase blade tension a little at a time 5. Move guides as close to work as possible 6. Replace blade 7. Check manual for recommended speeds 8. Tighten 9. Tighten 10. Retrace blade according to operating instructions
Bade cuts (rough)	1. Too much speed or feed 2. Blade is too coarse	1. Reduce speed and feed 2. Replace with finer blade
Unusual wear on side/back of blade	1. Blade guides worn 2. Blade guide bearings not adjusted properly 3. Blade guide bearing bracket is loose	1. Replace 2. Adjust as per operators manual 3. Tighten
Teeth ripping from blade	1. Tooth too coarse for work 2. Too heavy feed; too slow feed 3. Vibrating work piece 4. Gullets loading	1. Use finer tooth blade 2. Increase feed pressure and /or speed 3. Clamp work securely 4. Use coarse tooth blade or brush to remove workpieces
Motor running too hot	1. Blade tension too high 2. Drive belt tension too high 3. Blade is too coarse for work (pipes especially) 4. Blade is too fine for work (heavier, soft material) 5. Gear not aligned properly 6. Gears need lubrication 7. Idler wheel needs lubrication	1. Reduce tension on blade 2. Reduce tension on drive belt 3. Use finer blade 4. Use coarser blade 5. Adjust gears so that worm is in center or gear 6. Check oil bath 7. Oil bearing/shaft on idler wheel

CAUTION

Some service processes should only be carried out by professional maintenance personnel. If you are unsure of your ability to complete a task, please contact your local Hafco/Metalmaster service engineer.

SWIVEL HEAD METAL CUTTING BAND SAW

BS-7

ORDER CODE: (B007)

EDITION : 1.0
DATE: (03/25)

The following section covers the spare parts diagrams and lists that were current at the time this manual was originally printed. Due to continuous improvements of the machine, changes may be made at anytime without notification.

HOW TO ORDER SPARE PARTS

1. Have your machines model number, serial number & date of manufacture on hand, these can be found on the specification plate mounted on the machine.
2. A scanned copy of your parts list/diagram with required spare part/s identified.

NOTE: SOME PARTS MAY ONLY BE AVAILABLE AS AN ASSEMBLY

3. Go to www.machineryhouse.com.au/contactus and fill out the inquiry form attaching a copy of scanned parts list.

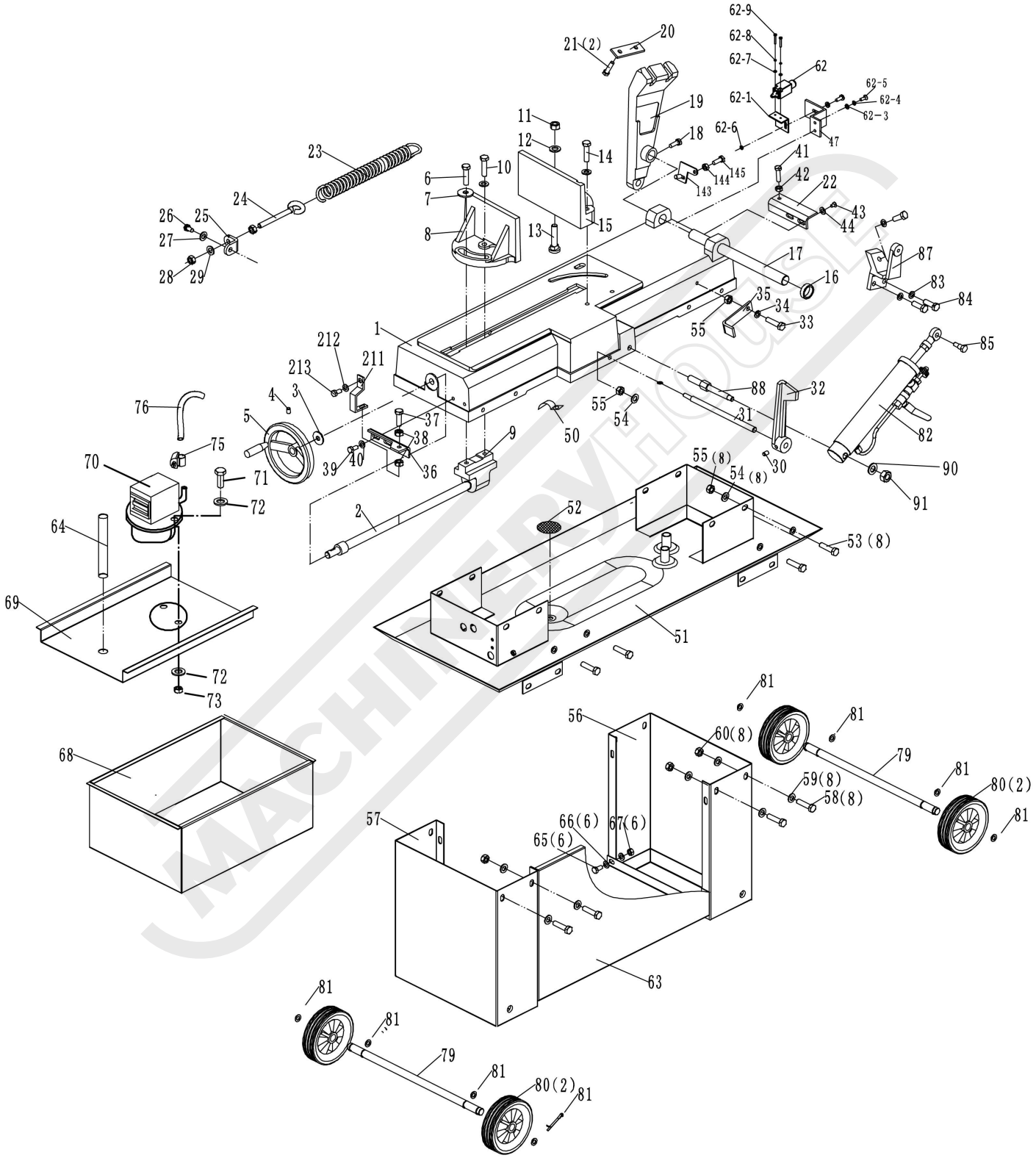
WARNING!
Electricity is dangerous and could cause death.
All electrical work must be carried out by a qualified electrician.

CAUTION!
It is impossible to cover all possible hazards Every workshop environment is different. These are designed as a guide to be used to compliment training and as a reminder to users prior to equipment use. Always consider safety first, as it applies to the individual working conditions.

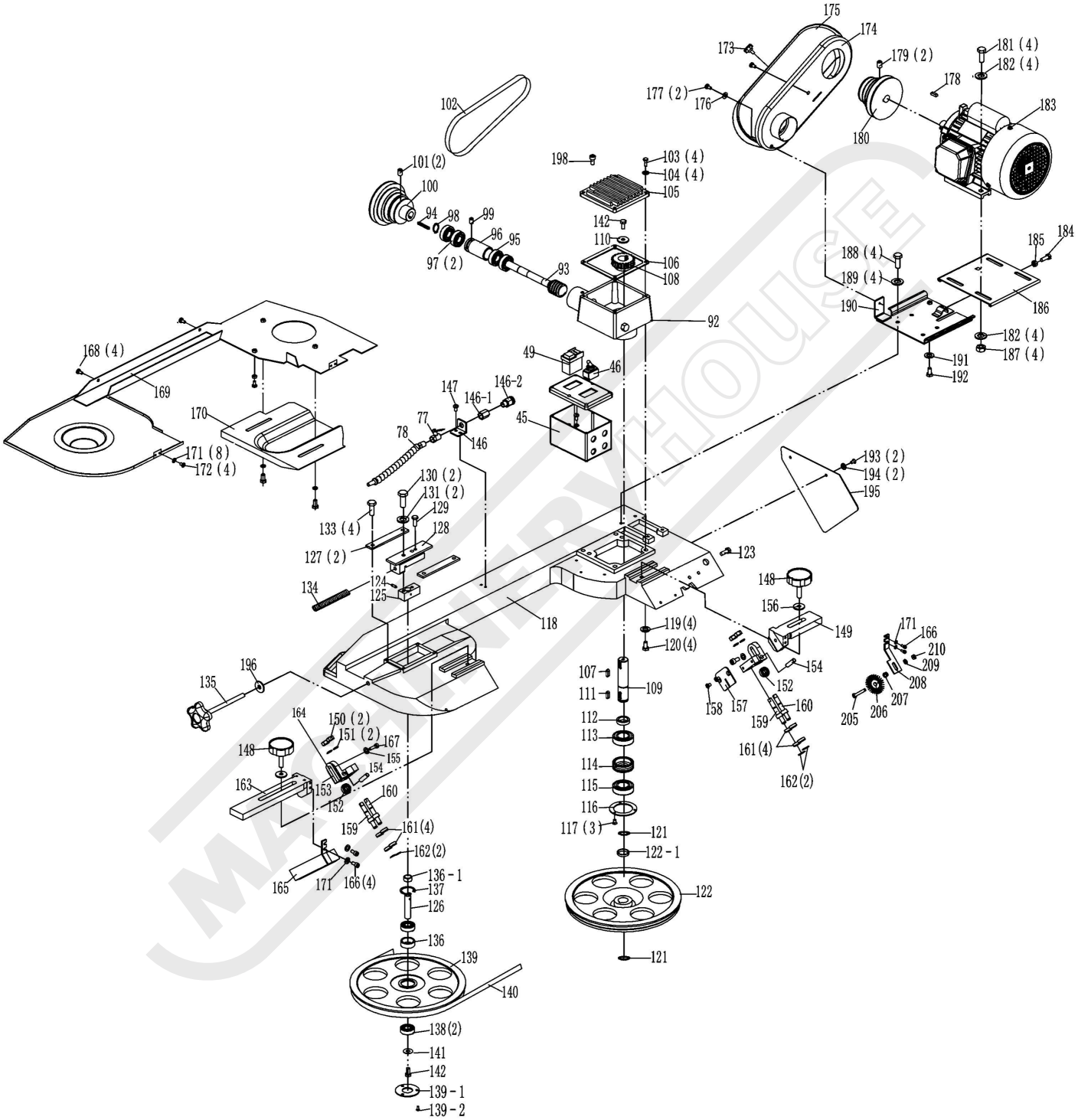
PARTS LIST

part number	description	size number	qty
1	TABLE		1
2	ACME SCREW		1
3	WASHER	Φ16	1
4	HEX.SOC.SET.SCREW	M8x12	1
5	WHEEL		1
6	HEX.HD.SCREW	M10x40	1
7	WASHER	Φ10	2
8	VISE JAW BRACKET(FRONT)		1
9	BRACKET		1
10	HEX.SOC.SCREW	M10x40	1
11	HEX.NUT	M12	1
12	WASHER	Φ12	1
13	CARRIAGE BPLT		1
14	HEX.HD.SCREW	M10x40	1
15	VISE JAW BRACKET(REAR)		1
16	BUSHING		1
17	SUPPORT ROD		1
18	HEXAGON BOLT	M8X20	1
19	PIVOT BRACKET		1
20	WASHER		1
21	HEX.HD.SCREW	M10X40	2
22	SUPPORT PLATE		1
23	SPRING		1
24	SPRING ADJUSTING ROD		1
25	SPRING HANDLE BRACKET		1
26	HEX.HD.SCREW	M8X16	1
27	WASHER	Φ8	1
28	HEX.NUT	M10	1
29	WASHER	Φ10	1
30	HEX.SOC.SET.SCREW	M8X12	1
31	STOCK STOP ROD		1
32	STOP BLOCK		1
33	HEX.HD.SCREW	M8X30	1
34	WASHER	Φ8	1
35	SUPPORT PLATE		1
36	SUPPORT PLATE		1
37	HEX.HD.SCREW	M10X30	1
38	HEX.NUT	M10	1
39	HEX.HD.SCREW	M8X16	2
40	WASHER	Φ8	2
41	HEX.HD.SCREW	M8X30	1
42	HEX.NUT	M8	1
43	HEX.HD.SCREW	M8X16	2
44	WASHER	Φ8	2
45	ELECTRICAL BOX		1
46	SWITCH		1
47	COVER		1
49	TOGGLE SWITCH		1
50	WIRE RETAINER		1
51	COOLANT PAN		1
52	FILTER		1
53	HEX.HD.SCREW	M8X30	8
54	WASHER	Φ8	17
55	HEX.NUT	M8	8
56	LEG(RIGHT)		1
57	LEG(LEFT)		1
58	HEX.HD.SCREW	M10X20	8
59	WASHER	Φ10	16
60	HEX.NUT		8
62	LIMIT SWITCH		1
62-1	SWITCH HIP		1
62-3	SPRING WASHER		2
62-4	WASHER 6		5
62-5	ROUND HD.SCREW	M6x16	3
62-6	HEX.NUT	M6	1
63	PANEL		1
64	HOSE		1
65	HEX.HD.SCREW	M8X16	6
66	WASHER	Φ8	12
67	HEX.NUT	M8	6
68	COOLANT TANK		1
69	PUMP SUPPORT		1
70	COOLING PUMP		1
71	HEX.HD.SCREW	M4X16	2
72	WASHER	Φ4	2
73	HEX.NUT	M4	2
75	HOSE CLAMP		2
76	HOSE		1
77	TUBE FITTING	1/4PT"	1
78	NOZZLE COCK	1/4PTx8'	1
79	WHEEL ROD		2
80	WHEEL		2
81	CHECK RING		8
82	CYLINDER		1
83	WASHER	Φ8	3
84	HEX.HD.SCREW	M8X25	3
85	HEX.HD.SCREW		1
87	CYLINDER BRACKET		1
88	SUPPORT ROD		1
90	FLAT WASHER	Φ10	1
91	HEX NUT	M10	1
92	GEAR BOX		1
93	WORM SHAFT		1
94	KEY	5X5X55	1
95	BEARING	6003Z	1
96	BEARING BUSHING		1
97	BEARING	6003Z	2
98	CRING	A17	1
99	HEX.SOC.SET.SCREW	M8X12	1
100	WORM PULLEY		1
101	HEX.SOC.SET SCREW	MX12	2
102	BELT	A650	1
103	HEX.HD.SCREW	M6x20	4
104	WASHER	Φ6	4
105	GEAR BOX COVER		1
106	GEAR BOX GASKET		1
107	KEY	6X6X20	1
108	WORM GEAR		1
109	TRANSMISSION SHAFT		1
110	C-RING 8		1
111	KEY	6X6X20	1
112	BUSHING		1
113	BEARING	180205	1
114	BEARING BUSHING		1
115	BEARING	180205	1
116	BEARING COVER		1
117	HD.SCREW	M4X8	3
118	BODY FRAME		1
119	SPRING WASHER	Φ10	4
120	HEX.HD.SCREW	M10X40	4
121	CRING		1
122	BLADE WHEEL(REAR)		1
122-1	ACTIVE SAW WHEEL		1
123	HEXAGON BOLT	M8X20	1
124	PIN	4x25	1
125	SLIDING BRAW SLOCK		1
126	BLSDE WHEEL SHAFT(FRONT)		1
127	SLIDING GUIDES PLATE		2
128	BLADE TENSION SLIDING BLOCK		1
129	HEXAGON SOCKET SCREW	M8X40	1
130	HEXAGON SOCKET SCREW	M8X40	2
131	SPRING WASHER	Φ8	2
133	HEX.HD.SCREW	M8X16	4
134	SPRING		1
135	BLADE ADJUSTABLE KNOB		1
136	BEARING BUSHING		1
137	CRING	B35	1
138	BEARING	6202Z	2
139	BLADE WHEEL(FRONT)		1
139-1	BEARING CAP		1
139-2	HD.SCREW	M4X8	3
140	BLADE	2360X20X0.9	1
141	WASHER	Φ8	1
142	HEX.HD.SCREW	M8X16	1
143	SWITCH HIP		1
144	WASHER	Φ6	1
145	ROUND HD.SCREW	M6X16	1
145-1	SPRING WASHER 6		5
146	NOZZLE COCK SUPPORT		1
146-1	JOINT		1
146-2	WATER PIPE HEAD		1
147	ROUND HD.SCREW	M6X12	2
148	TAHE THE BOLT	M10X35	2
149	ADJUSTABLE BRACKET(REAR)		1
150	HEX NUT	M10X1	4
151	SPRING WASHER	Φ10	4
152	BEARING	80029	2
153	BLADE ADJUSTABLE REAR)		1
154	BEARING PIN		2
155	WASHER	Φ8	1
156	HEX.SOCK.SCREW	Φ10	2
157	DEFLECTOR PLATE		1
158	HD.SCREW	M4X8	3
159	BEARING SHAFT		2
160	ECCENTRIC SHAFT		2
161	BEARING	80029	8
162	CRING	A10	4
163	ADJUSTABLE BRACKET(FRONT)		1
164	BEARER CARRIER		2
165	BLADE COVER(FRONT)		1
166	ROUND.HD.SCREW	M6x12	6
167	HEX.SOC.SCREW	M8X25	2
168	PLUM SCREW		4
169	BLADE BAC COVER		1
170	WHEEL COVER		1
171	WASHER	Φ6	10
172	ROUND HD.SCREW	M6X12	4
173	PLUM SCREW		1
174	MOTOR PULLEY COVER		1
176	WASHER	Φ6	2
177	HEX.HD.SCREW	M6x16	2
178	KEY	6X6X40	1
179	HEX.SOC.SET SCREW	M8X12	1
180	MOTOR PULLEY		1
181	HEX.HD.SCREW	M8X25	4
182	WASHER	Φ8	8
183	MOTOR		1
184	HEX.SOC.SCREW	M8XC35	1
185	HEX NUT	M8	1
186	MOTOR MOUNT PLATE		1
187	HEX.NUT	M8	4
188	HEX.HD.SCREW	M8X16	4
189	WASHER	Φ8	4
190	MOTOR MOUNT BRACKET		1
191	HEX.NUT	M8	1
192	HEX.HD.SCREW	M8X16	1
193	HEX.HD.SCREW	M6X12	2
194	WASHER	Φ6	2
195	SUPPORT PLATE		1
196	FLAT GASKET	Φ10	1
198	BOLT	M8x12	1
205	HEX.HD.SCREW	M6X25	1
206	BRUSH		1
207	SELF LOCKING	M6	1
208	BRUSH PLATE		1
209	FLAT MAT	Φ6	1
210	HEX.NUT	M6	1

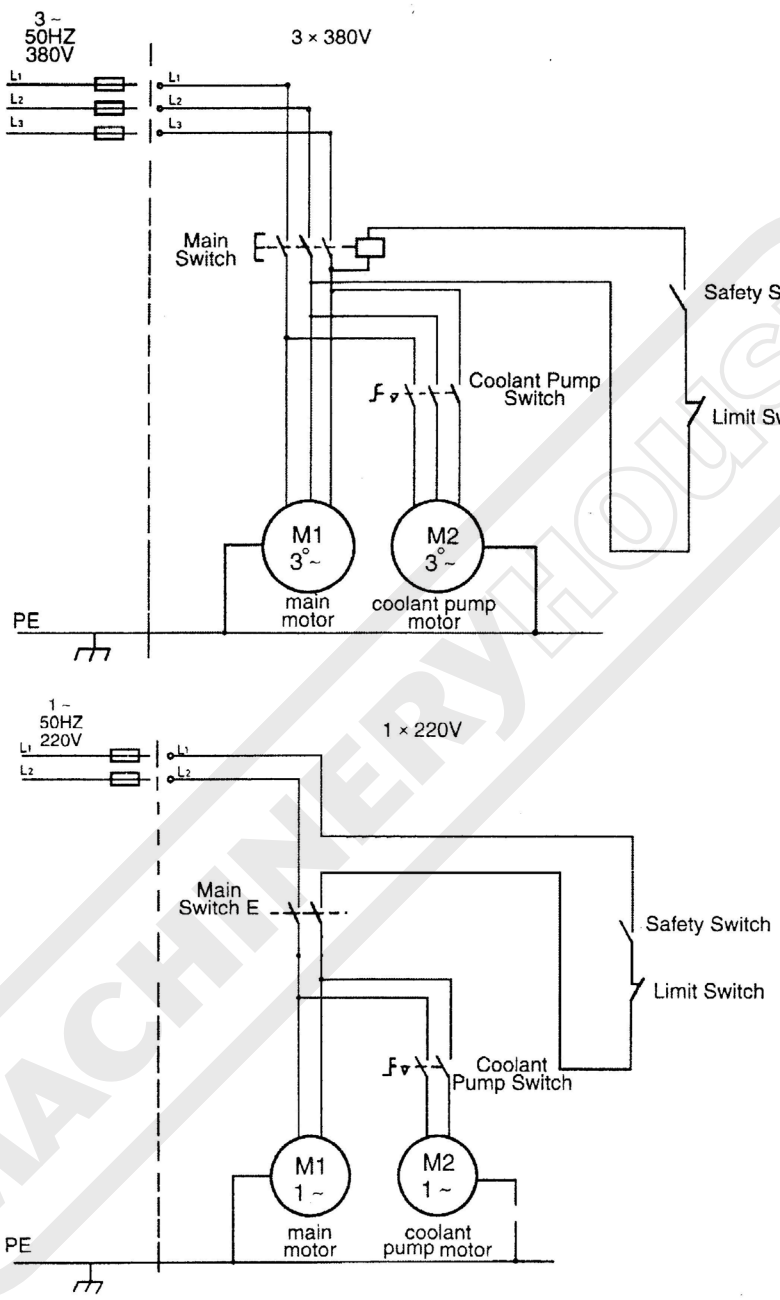
PARTS DIAGRAM



PARTS DIAGRAM



WIRING DIAGRAM



GROUNDING:

The grounding of this model is carried out by connecting the yellow/green terminal of supply cable to the grounding terminal of power source. Be sure to ground your machine before connecting machine to power source in any situation.

⚠WARNING

Do not disconnect grounding terminal before disconnecting power source.

⚠ 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 the Correct Extension Lead.** Extension leads should be avoided where possible but If required, always use an extension lead that is rated for the power requirements of your machinery. Using an incorrectly rated extension lead can lead to overheating, damage to machinery, or potential fire hazards. Ensure leads are in good condition and free of damage. Replace if faulty.
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. Ensure all guards removed to do maintenance or change blades on the machine are refitted correctly in place before the machine is used again.

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

NOTES:

ENVIRONMENT PROTECTION

Recycle unwanted materials instead of disposing of them as waste. All tools, accessories and packaging should be sorted, taken to a recycling centre and disposed of in a manner which is compatible with the environment. When the product becomes completely unserviceable and requires disposal, drain any fluids (if applicable) into approved containers and dispose of the product and fluids according to local regulations.

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