



INSTRUCTIONS FOR:

BANDSAW 400MM HORIZONTAL HYDRAULIC ARM

MODEL No: **SM353CE.V2**

Thank you for purchasing a Sealey product. Manufactured to a high standard, this product will, if used according to these instructions and maintained properly, give you years of trouble free performance.

IMPORTANT: PLEASE READ THESE INSTRUCTIONS CAREFULLY. NOTE THE SAFE OPERATIONAL REQUIREMENTS, WARNINGS & CAUTIONS. USE THE PRODUCT CORRECTLY AND WITH CARE FOR THE PURPOSE FOR WHICH IT IS INTENDED. FAILURE TO DO SO MAY CAUSE DAMAGE AND/OR PERSONAL INJURY AND WILL INVALIDATE THE WARRANTY. KEEP THESE INSTRUCTIONS SAFE FOR FUTURE USE.



Refer to
Instruction
Manual



Wear Eye
Protection



Wear Ear
Protection

1. SAFETY

1.1. ELECTRICAL SAFETY.

WARNING! It is the user's responsibility to read, understand and comply with the following:

You must check all electrical equipment and appliances to ensure they are safe before using. You must inspect power supply leads, plugs and all electrical connections for wear or damage. You must ensure the risk of electric shock is minimised by the installation of appropriate safety devices. An RCCB (Residual Current Circuit Breaker) should be incorporated in the main distribution board. We also recommend that an RCD (Residual Current Device) is used with all electrical products. It is particularly important to use an RCD with portable products that are plugged into an electrical supply not protected by an RCCB. If in doubt consult a qualified electrician. You may obtain a Residual Current Device by contacting your Sealey dealer. **You must** also read and understand the following instructions concerning electrical safety.

1.1.1. The **Electricity At Work Act 1989** requires all portable electrical appliances, if used on business premises, to be tested by a qualified electrician, using a Portable Appliance Tester (PAT), at least once a year.

1.1.2. The **Health & Safety at Work Act 1974** makes owners of electrical appliances responsible for the safe condition of those appliances, and the safety of appliance operators. **If in any doubt about electrical safety, contact a qualified electrician.**

1.1.3. Ensure the insulation on all cables and the product itself is safe before connecting to the electric powersupply. See 1.1.1. & 1.1.2. above and use a Portable Appliance Tester (PAT).

1.1.4. Ensure that cables are always protected against short circuit and overload.

1.1.5. Inspect power supply leads and plugs regularly for wear or damage and connections to ensure that none are loose.

1.1.6. **Important:** Ensure the voltage marked on the product is the same as the electrical power supply to be used, and check that plugs are fitted with the correct capacity fuse.

1.1.7. **DO NOT** pull or carry the powered appliance by its power supply lead.

1.1.8. **DO NOT** pull power plugs from sockets by the power cable.

1.1.9. **DO NOT** use worn or damage leads, plugs or connections. Replace or have repaired immediately by a qualified electrician. Where a U.K. 3 pin plug with ASTA/BS approval is fitted, in case of damage, cut off and fit a new plug according to the following instructions (discard old plug safely).

(UK only - see diagram at right). **Ensure the unit is earthed correctly via a three-pin plug.**

a) **Connect the GREEN/YELLOW earth wire to the earth terminal 'E'.**

b) **Connect the BROWN live wire to the live terminal 'L'.**

c) **Connect the BLUE neutral wire to the neutral terminal 'N'.**

d) **After wiring, check there are no bare wires, that all wires have been connected correctly, that the cable outer insulation extends past the cable restraint and that the cable restraint is tight.**

1.1.10. **Cable extension reels.** When a cable extension reel is used it should be unwound fully before connection. A cable reel with an RCD fitted is recommended since any product which is plugged into the cable reel will be protected. The section of the cores in the cable is important and should be at least 1.5mm², but to be absolutely sure that the capacity of the cable reel is suitable for this product and for others that may be used in the other output sockets, the use of 2.5mm² section is recommended.

1.2. GENERAL SAFETY

Familiarise yourself with the application and limitations of the saw, as well as the specific potential hazards.

Ensure that all Health and Safety, local authority, and general workshop practice regulations are strictly adhered to.

WARNING! Take care lifting the bandsaw arm as it is heavy, and could, if not correctly lifted, affect the whole balance of the machine.

DO NOT operate the bandsaw unless all blade guards are installed and in proper working order.

DO NOT operate the bandsaw with the blade in the fully raised position.

DO NOT leave the machine running unattended.

DO NOT operate the machine if any parts are damaged or missing as this may cause failure and/or personal injury.

DO NOT use the bandsaw for a task it is not designed to perform.

DO NOT use damaged or deformed bandsaw blades.

DO NOT remove the safety guard whilst in use.

DO NOT hold the workpiece by hand.

DO NOT touch the workpiece immediately after cutting, it may be very hot.

DO NOT operate the machine when you are tired or under the influence of alcohol, drugs or intoxicating medication.

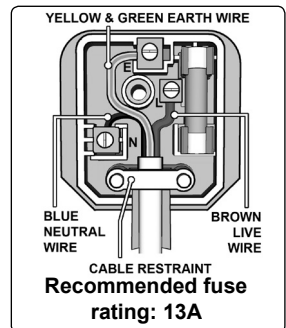
Ensure the machine is situated on a solid surface, adequate for supporting the weight of the machine and the workpiece.

Keep all guards and holding screws in place, tight and in good working order. Check regularly for damaged parts.

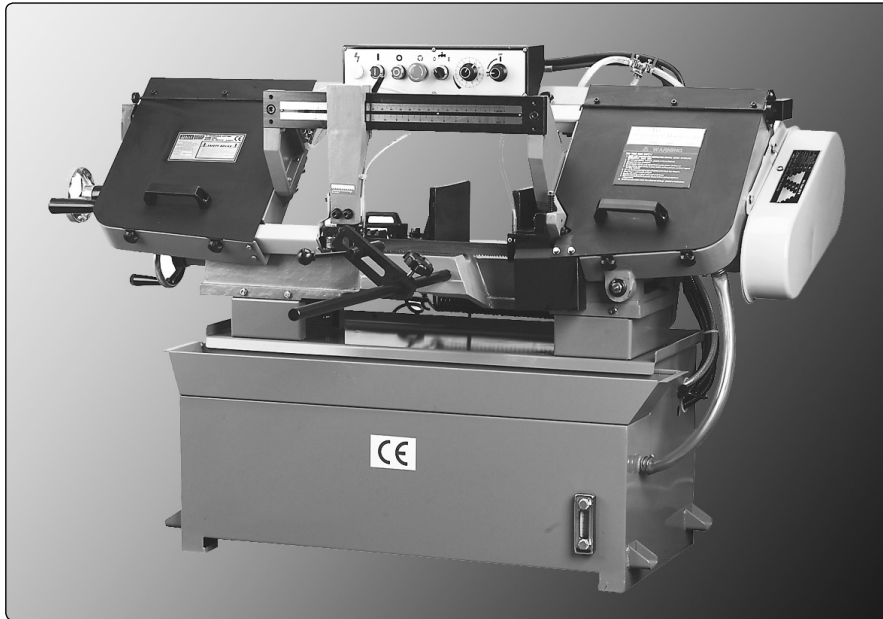
Disconnect bandsaw from the electric power supply before changing accessories, making repairs or adjustments.

Wear approved safety eye protection and ear defenders.

Maintain correct balance and footing, ensure the floor is not slippery and wear non-slip rubber soled footwear.



- ✓ Always provide adequate support for long and heavy material.
- ✗ **DO NOT** turn bandsaw on until the workpiece is secured in the vice and the blade has been positioned just above the workpiece.
- ✗ **DO NOT** over tighten the blade as it will stretch and warp.
- ✗ **DO NOT** allow children or untrained persons to operate the machine. Keep them away from the work area.
- ✓ Check the alignment of moving parts regularly; for safest performance keep the machine clean at all times.
- ✓ Turn off the machine before raising the blade
- ✓ Avoid unintentional starting.
- ✓ Remove, clean and inspect the blade brush regularly.
- ✓ Remove any adjusting keys and wrenches from the bandsaw before turning it on.
- ✓ Replace or repair damaged parts. Use recommended parts only; unauthorised parts may be dangerous and will invalidate the warranty.
- ✓ Keep hands and body clear of the work table when operating the bandsaw.
- ✓ Remove ill fitting clothing, ties and loose jewellery; tie back long hair.
- ✓ Ensure there are no flammable materials near the work area.
- ✓ When not in use isolate from the electric supply, slacken blade tension (see section 6.3). Ensure that the machine cannot be accessed by children.



2. INTRODUCTION

Saw arm is fitted with hydraulic damping to prevent the arm being dropped onto the workpiece and to ensure smooth cutting performance. Coolant fluid system. Heavy-duty single phase electric motor with over-current sensor to cut power in the event of blade jam.

3. SPECIFICATION

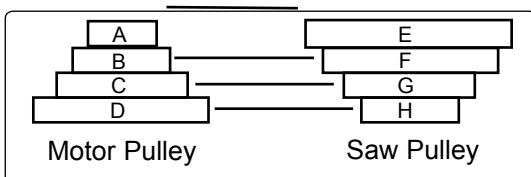
Capacity 90° round.....Ø230mm
 Capacity 90° square/rectangular H x W.....230 x 370mm
 Capacity 45° round.....Ø185mm
 Capacity 45° square/rectangular H x W.....230 x 185mm
 Blade Size25.0 x 0.89 x 3035mm

Blade Speeds 25, 40, 51, 71mtr/min
 Motor Power1120W
 Power Supply 230V/1ph
 Weight285kg

Recommended blade teeth per inch (tpi) for nominal cut length

Cut length	<13mm	6-16mm	8-22mm	17-40mm	>38mm
Tpi	24	18	14	8	4

Cutting Chart for Flat and Round Bar



Recommended Pulley Selection for Various Metals

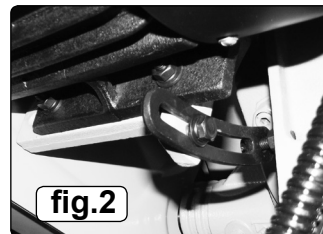
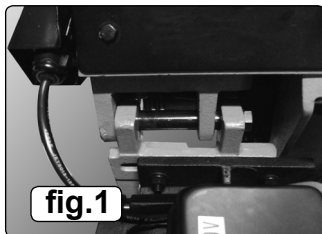
Material	Motor Pulley	Saw Pulley	Blade Speed
Tool, stainless or alloy steel. Bearing bronze.	Small (A)	Large (E)	25m/min
Medium to high carbon steel. Hard brass or bronze. Cast iron.	Medium (B)	Large (F)	40m/min
Low to medium carbon steel. Soft brass.	Medium (C)	Medium (G)	51m/min
Aluminium. Copper. Brass.	Large (D)	Small (H)	71m/min

4. ASSEMBLY

- **WARNING: THIS MACHINE IS HEAVY!** Exercise care when lifting and moving. Be aware of good manual handling practice.
- ✗ **DO NOT** lift by the band saw arm.
When removed from the crate, remove protective grease with paraffin or similar.

4.1. Motor Fitting.(fig.1)

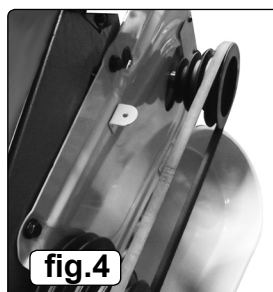
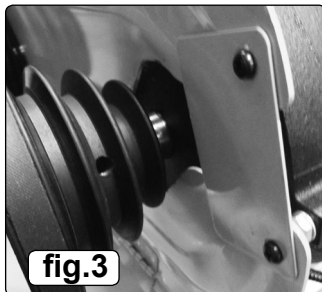
- **WARNING:** Fitting the motor requires at least 2 persons.
- 4.1.1. Remove the nut and washer from the motor support spindle and withdraw the spindle.
- 4.1.2. Offer the motor up to the support bracket, with the lugs on the motor to the right of those on the bracket.
- 4.1.3. Slide the spindle in with the thread first. When through the bracket and motor lugs, place the washer and thread the nut onto the spindle and tighten.
- 4.1.4. Line the driving and driven pulleys up by edging the motor along the spindle until aligned.
- 4.1.5. Place the V-belt over the pulleys.



- 4.1.6. Using a second person to support the motor, remove the tension strut bolt and washer from the motor mounting plate (fig.2).
- 4.1.7. Place the washer on the tension strut bolt and place the bolt through the slot in the tension strut. Insert the bolt into the threaded hole in the motor base. Lift the motor to tension the V-belt.
- 4.1.8. Tighten the tension strut bolt to secure the motor (fig.2).

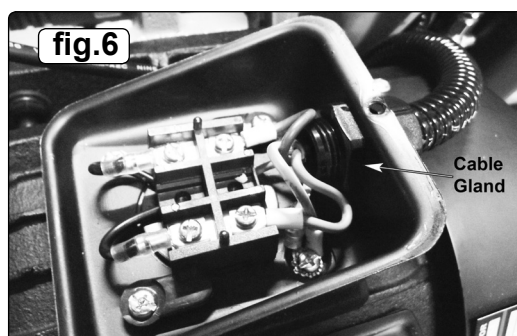
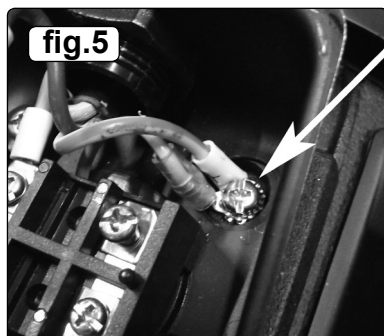
4.2. Belt Guard Fitting.

- 4.2.1. Remove the two securing bolts and washers from the casting behind the pulleys.
- 4.2.2. Remove the bridge piece (fig.3) from the belt guard by unscrewing the self-tapping screws.
- 4.2.3. Slide the belt guard around the spindles of the motor and gearbox.
- 4.2.4. Secure the belt guard to the casting using the securing bolts and washers (fig.4).
- 4.2.5. Refit the bridge piece using the self-tappers.
- 4.2.6. Close and lock the belt guard by means of the securing screw.



4.3. Motor Wiring.

- 4.3.1. Locate the flexible conduit holding the motor input wiring.
- 4.3.2. Remove the connection box lid, gasket and the plastic terminal cover.
- 4.3.3. Connect the flexible conduit to the connection box using the cable gland found on the end of the conduit.(fig.6).
- 4.3.3. Connect the earth terminal to the earth point in tandem with the earth lead from the motor (fig.5).



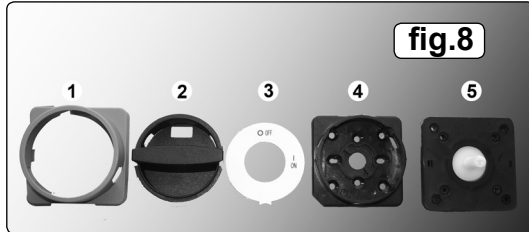
- 4.3.4. Connect the live (brown) and neutral (blue) leads to either of the motor terminals. The motor will run in a clockwise direction irrespective of the input connections (fig.6)
- 4.3.5. Replace the plastic terminal cover, gasket and connection box cover.

4.4. Control Box Fitting

Remove the control box from its packaging (it is already connected both electrically and hydraulically) and fit to the arm using the bolts and washers shown in fig.7.



4.5. Isolating Switch Fitting (Relay Cabinet Door)



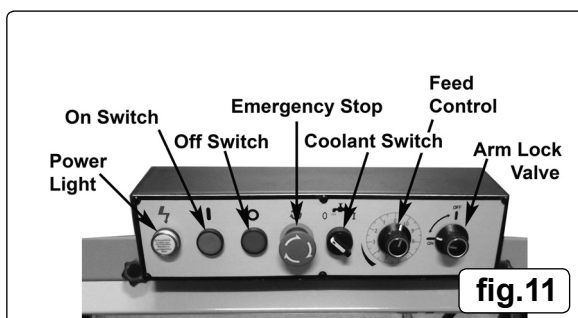
- 4.5.1. Open the relay cabinet by loosening the hex screw.
- 4.5.2. Dismantle the switch as in Fig.8. Prise the cover (fig.8.1) gently over the handle (fig.8.2) with a screwdriver to release.
- 4.5.3. Fit the switch back plate to the back of the door with the large notch facing downwards (fig.9).
- 4.5.4. Attach the front plate (fig.8.4) to the front of the door with the 45° corner at the lower left and secure to the back plate with the 4 screws.
- 4.5.4. Fit the label card (fig.8.3.) with the tongue in the lower cut-out and press the handle (fig.8.2) onto the shaft. 'Off' and 'On' should show through the window in the face of the handle when turned through 90°.
- 4.5.5. Refit the cover (fig.8.1.) over the handle.
- 4.5.6. It should now only be possible to open the relay cabinet door with the switch in the 'Off' position.
- 4.5.7. Secure the cabinet door with the hex screw.
- 4.6. Work Rest Fitting (fig.10)**
- 4.6.1. Screw and tighten the bar into the threaded hole near the vice.
- 4.6.2. Clamp the support arm and thimble onto the bar.
- 4.6.3. Adjust the support arm so as to be level with the vice for supporting flat sections.
- 4.6.4. To support tube sections, move the arm radially and use the thimble to support the inside of the tube.
- 4.7. Connecting to Electrical Supply.**
- 4.7.1. If connecting to a 13A plug, wire in accordance with section 1.1.9. of these instructions.
- 4.7.2. If it is intended to make a permanent electrical connection, the guidance of a competent electrician should be sought.
- 4.7.3. It is recommended that a PAT test is carried out as part of the commissioning.
- 4.8. Tensioning the Blade.**
The blade should be tensioned to 2000kg/cm² before use (see section 6.3. for details)

5. OPERATION

WARNING! Before operating the bandsaw ensure that you read, understand and apply the safety instructions in Section 1. OPERATION.

NOTE: Before operating the machine certain checks and adjustments will need to be carried out. It is very important that these instructions are followed carefully in order that the machine is set up safely and correctly.

- 5.1.1. Check that the blade is suitable for the material to be cut.
- 5.1.2. Check the blade for correct tension and check the blade guide bearings.
- 5.1.3. Select the appropriate speed for the material being cut.
- 5.1.4. Raise the blade arm and lock in position by closing the arm lock valve (fig.11).
- 5.1.5. Secure the material to be cut in the vice. Coarse adjustments to the vice may be made by moving the vice pawl along the rack
- 5.1.6. Open the arm lock valve, lower blade arm until blade is just above workpiece, close valve and then position both blade guides as close to the work as possible.
- 5.1.7. Check the coolant level.
- 5.1.8. Plug in the saw, turn on the isolating switch, turn on the coolant pump and then the saw. **DO NOT** start saw with blade touching workpiece.
- 5.1.9. Open arm lock valve to allow blade to come down onto workpiece. Adjust feed rate as required with feed control (fig.11).
- 5.1.10. Coolant flow may be adjusted by the control valves (fig.12).



Note: If the emergency stop (fig.11) has been pressed it must be rotated to reset before the saw can be used again.

6. ADJUSTMENTS

WARNING! Before following any of the steps below ensure the bandsaw is switched off, isolated from the electric power supply and at a complete standstill. Failure to comply with this instruction can result in serious injury.

6.1. BLADE AND SPEED SELECTION.

- 6.1.1. Refer to Section 2 for the recommended setup for cutting various materials.
- 6.1.2. A good rule for blade selection is that 3 teeth should always be in contact with the workpiece, therefore, **the thinner the work piece, the more teeth the blade should have.**

6.2. TO ADJUST BLADE SPEED.

- 6.2.1. Disconnect the machine from the power supply.
- 6.2.2. Loosen the securing screw on the belt guard and lower the guard
- 6.2.3. Release tension on the belt by turning the tension strut bolt anti-clockwise and letting the motor swing forward.
- 6.2.4. Shift the belt to the desired grooves on the pulleys. Adjust the belt tension by pulling the motor plate back until correct tension is obtained then tighten the tension strut bolt.
- 6.2.5. Close the belt guard.

6.3. TO CHANGE BLADE AND ADJUST TENSION.

Caution: Blade teeth are sharp, handle with care.

NOTE: Proper blade tension is very important to the safe and efficient running of the bandsaw. The correct tension for the SM353CE.V2 is 2000kg/cm².

NOTE: The teeth must be pointing in the correct direction (indicated on the label found on the saw arm).

- 6.3.1. Raise saw frame to the vertical position and close the feed control valve by turning clockwise as far as it will go (**DO NOT** overtighten).
- 6.3.2. Open both wheel covers and clean the swarf out of the machine.
- 6.3.3. Release blade tension by turning the blade tension handwheel anti-clockwise.
- 6.3.4. Slide the left blade guide arm to the right as far as it will go.
- 6.3.5. Remove the blade from both wheels and out of each blade guide.
- 6.3.6. Install the new blade, (teeth pointing down) on the blade wheels and through the upper blade guide, working all the way up between the blade guide bearings with the back of the blade against the back-up bearing.
- 6.3.7. Put light tension on the blade and work onto both wheels. (Ensure the back of the blade is against the wheel flanges of both wheels).
- 6.3.8. Adjust blade to the final tension (2000kg/cm²). Proper tension is achieved by reference to the gauge on the stem of the tension wheel (fig.13).
- 6.3.9. Connect the machine to the power supply and turn it on and off two to three times to ensure that the blade is seated and tracking properly. When finished close the wheel covers.



6.4. HYDRAULIC FEED ADJUSTMENT.

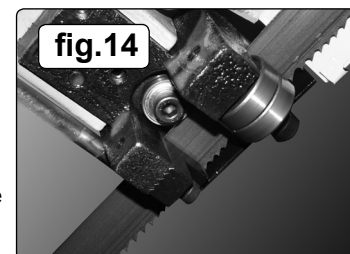
- 6.4.1. Adjust the hydraulic feed by turning the feed control on the control panel. Anti-clockwise will increase the feed rate, clockwise will decrease it.
- 6.4.2. To stop the flow of hydraulic fluid, turn off the arm lock valve.

6.5. TO ADJUST THE BLADE GUIDES.

- 6.5.1. Loosen the adjusting handle on each blade guide and slide guide assemblies as close as possible to each side of the workpiece and tighten.

6.6. TO ADJUST THE BLADE GUIDE BEARINGS. (fig.14).

- 6.6.1. Raise the saw arm to a vertical position and close the arm lock valve.
- 6.6.2. Loosen the hex. cap screw on the guide assembly and adjust the rear bearing to 0.025 mm from the blade.
- 6.6.3. Loosen lock nut and turn the front bearing eccentric so that bearing is snug with the blade. The blade should still move up and down freely if grasped. Repeat the procedure for the other guide assembly.



6.7. ADJUSTING THE VICE.

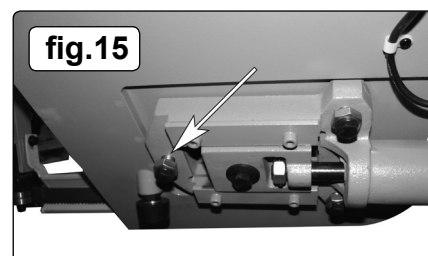
NOTE: Do not adjust the vice or load/unload any material while the saw is running. The vice can be adjusted to hold the workpiece at angles between 0° and 45°.

- 6.7.1. To position the moveable vice jaw, turn the vice handwheel counter-clockwise half a turn and move the vice jaw to the desired position and tighten using hand wheel.
- 6.7.2. Vice can be adjusted to cut any angle from 0° to 45° by loosening the two bolts on each vice jaw. Position the jaw to the desired angle and tighten the bolts
- 6.7.3. When cutting at an angle, it is necessary to move the right vice jaw to the left until the workpiece and the right hand vice jaw are clear of the right hand guide arm.

6.8. TO ADJUST BLADE TRACKING.

NOTE: Blade tracking is factory set and should not require adjustment. However, if it does become necessary, proceed as follows:

- 6.8.1. Run saw for a short time and then switch off.
- 6.8.2. Raise saw arm, open blade cover and check blade-to-wheel relationship (tracking). Rear edge of blade should be very close to, but not hard against, the wheel flanges.
- 6.8.3. If inspection indicates that adjustment is required tighten or loosen the screw (fig.15) until it tracks properly.
- 6.8.4. Having made a small adjustment **close the blade cover** and run the saw for a short time.
- 6.8.5. Switch saw off, open blade cover and check tracking. Repeat adjustment procedure if necessary.



7. MAINTENANCE

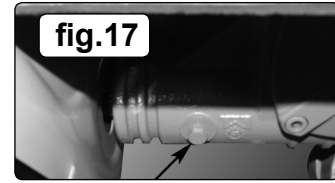
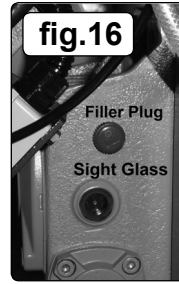
- ❑ **WARNING! Before carrying out any maintenance ensure that the bandsaw is switched off, isolated from the mains supply and that the blade is at a complete standstill. Failure to comply with this instruction can cause serious injury.**

7.1. LUBRICATION.

- 7.1.1. Ball bearings on the blade guide assemblies and blade wheels are permanently sealed requiring no lubrication.
 7.1.2. Keep all surfaces clean and free of rust, swarf and coolant build-up.
 7.1.3. Lubricate vice screw lightly with grease.

7.2. GEARBOX OIL.

- 7.2.1. Check the gearbox oil level by means of the sight glass (fig.16). With the arm lowered, the oil should be at the level of the red dot. Top up if necessary by means of the filler plug (fig.16).
 7.2.2. Change gearbox oil after the first 50 days of operation and thereafter every six months.
 7.2.2. Remove the drain plug (fig.17), drain oil and replace the plug.
 7.2.3. Fill the gearbox with approximately 850ml of SA20/50W gear oil.



7.3. GENERAL MAINTENANCE.

- ❑ **WARNING! Do not use compressed air to clean the bandsaw as metal filings may blow into the blade guide bearings and other critical areas. There is also a danger of flying particles being released into the surrounding area.**
- 7.3.1. Use a small paint brush or parts cleaning brush to remove metal particles. If inaccessible (and ferrous) use a magnetic pick-up tool.
 7.3.2. Wipe the saw down regularly with a clean dry cloth and protect all unpainted surfaces with light machine oil.
 7.3.3. Keep blade guides clean and free of metal filings.
 7.3.4. Check the guide bearings frequently to make sure they are adjusted properly and turning freely.

7.4. BLADE CLEANING BRUSH.

- 7.4.1. Replace the brush as soon as it becomes worn or damaged or blade life will be shortened significantly.

8. TROUBLESHOOTING

PROBLEM	CAUSE	SOLUTION
Excessive blade breakage and/or teeth ripping from the blade.	Workpiece is loose in the vice. Incorrect speed or feed. Blade is too coarse. Workpiece is too coarse. Incorrect blade tension. Blade is in contact with workpiece when saw is started. Blade is rubbing on the wheel flange. Blade guides are misaligned. Blade is too thick.	Clamp the workpiece securely. Adjust the speed or feed to suit the workpiece. Replace with a finer blade. Use the saw at slower speed and use a finer blade. Adjust blade tension. Place blade in contact with the workpiece only after the saw has started. Adjust tracking. Adjust blade guides. Use correct blade.
Premature blade dulling.	Blade is too coarse. Incorrect speed - too fast. Inadequate feed Hard spots or scale on the workpiece. Blade is twisting. Insufficient blade tension. Blade is sliding.	Replace with a finer blade. Reduce blade speed. Adjust hydraulic feed control and/or bow weight. Reduce blade speed, increase feed pressure. Replace blade and adjust to the correct tension. Increase blade tension. Increase blade tension and reduce blade speed.
Unusual wear on side or back of blade.	Blade guides are worn. Blade guides are misaligned. Blade guide brackets are loose.	Replace blade guides. Adjust guide pivots. Tighten blade guide brackets.
Motor overheating.	Blade tension too high. Drive belt tension too high. Blade too coarse or too fine. Gears need lubrication. Blade is binding in the cut.	Reduce blade tension. Reduce drive belt tension. Use a blade more suitable for the workpiece. Lubricate the gears. Decrease feed and blade speed.
Bad, crooked or rough cuts.	Feed pressure too great. Blade guides are misaligned. Inadequate blade tension. Blade is dull. Incorrect speed. Blade guides too far from workpiece. Blade guide assembly is loose. Blade is too coarse.	Adjust hydraulic feed control and/or bow weight. Adjust blade guides. Increase blade tension. Replace the blade. Adjust the speed. Adjust guides. Tighten the guide assembly. Use a finer blade.
Blade twisting.	Blade is binding in the cut. Blade tension is too high.	Adjust hydraulic feed control to decrease feed pressure. Decrease blade tension.

Environmental 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 off any fluids (if applicable) into approved containers and dispose of the product and the fluids according to local regulations.



WEEE Regulations

Dispose of this product at the end of its working life in compliance with the EU Directive on Waste Electrical and Electronic Equipment (WEEE). When the product is no longer required, it must be disposed of in an environmentally protective way. Contact your local solid waste authority for recycling information.

NOTE: It is our policy to continually improve products and as such we reserve the right to alter data, specifications and component parts without prior notice.

IMPORTANT: No liability is accepted for incorrect use of this product.

WARRANTY: Guarantee is 12 months from purchase date, proof of which will be required for any claim.



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