

**INSTRUCTIONS FOR:** METAL CUTTING BANDSAW MODEL NO : SM4

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



IMPORTANT BEFORE USING THIS PRODUCT, PLEASE READ THE INSTRUCTIONS CAREFULLY. MAKE CAREFUL NOTE OF SAFETY INSTRUCTIONS, WARNINGS AND CAUTIONS. THIS PRODUCT SHOULD ONLY BE USED FOR ITS INTENDED PURPOSE. FAILURE TO DO SO MAY CAUSE DAMAGE AND/OR PERSONAL INJURY AND WILL INVALIDATE THE WARRANTY. KEEP THESE INSTRUCTIONS SAFE.

### ELECTRICAL SAFETY 1.1

SAFETY INSTRUCTIONS

**WARNING!** It is the responsibility of the owner and the operator to read, understand and comply with the following:

You must check all electrical products, before use, to ensure that they are safe. You must inspect power cables, plugs, sockets and any other connectors for wear or damage. You must ensure that the risk of electric shock is minimised by the installation of appropriate safety devices. A Residual Current Circuit Breaker (RCCB) should be incorporated in the main distribution board. We also recommend that a Residual Current Device (RCD) is used. It is particularly important to use an RCD with portable products that are plugged into a supply which is not protected by an RCCB. If in any 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.

- The Electricity at Work Act 1989 requires all portable electrical appliances, if used on business premises, to be tested by a qualified 1.1.1 electrician, using a Portable Appliance Tester (PAT), at least once a year.
- The Health & Safety at Work Act 1974 makes owners of electrical appliances responsible for the safe condition of those appliances 1.1.2 and the safety of the appliance operators. If in any doubt about electrical safety, contact a qualified electrician.
- 1.1.3 Ensure that the insulation on all cables and on the appliance is safe before connecting it to the power supply. See 1.1.1. and 1.1.2. and use a Portable Appliance Tester.
- Ensure that cables are always protected against short circuit and overload. 114
- 1.1.5 Regularly inspect power supply cables and plugs for wear or damage and check all connections to ensure that none is loose.
- 1.1.6 Important: Ensure that the voltage marked on the appliance matches the power supply to be used and that the plug is fitted with the correct fuse - see fuse rating at right.
- 1.1.7 **DO NOT** pull or carry the appliance by the power cable.
- 1.1.8 **DO NOT** pull the plug from the socket by the cable.
- DO NOT use worn or damaged cables, plugs or connectors. Immediately have any faulty 1.1.9 item repaired or replaced by a qualified electrician. When an ASTA/BS approved UK 3 pin plug is damaged, cut the cable just above the plug and dispose of the plug safely. Fit a new plug according to the following instructions (UK only).
  - 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 that there are no bare wires, that all wires have been correctly

connected, that the cable outer insulation extends beyond the cable restraint and that the restraint is tight. Double insulated products, which are always marked with this symbol [], are fitted with live (brown) and neutral (blue) wires only. To rewire, connect the wires as indicated above - DO NOT connect either wire to the earth terminal.

- 1.1.10 Products which require more than 13 amps are supplied without a plug. In this case you must contact a gualified electrician to ensure that a suitably rated supply is available. We recommend that you discuss the installation of an industrial round pin plug and socket with your electrician.
- 1.1.11 If an extension reel is used it should be fully unwound before connection. A reel with an RCD fitted is preferred since any appliance plugged into it will be protected. The cable core section is important and should be at least 1.5mm<sup>2</sup>, but to be absolutely sure that the capacity of the reel is suitable for this product and for others which may be used in the other output sockets, we recommend the use of 2.5mm<sup>2</sup> section cable.

### **GENERAL SAFETY** 1.2

- WARNING disconnect the bandsaw from the power source before servicing, changing accessories, or performing any other maintenance.
- 1 Familiarise yourself with the applications and limitations of the product, as well as the potential hazards.
- 1 Maintain the bandsaw in top condition. Keep it clean and keep blades sharp for best and safest performance.
- 1 Use original Sealey spare parts only. Non-recommended parts may be dangerous and will invalidate the warranty.
- 1 Keep all guards and fixing screws in place, tight and in working order. Check regularly for damaged parts. A guard or any other part that is damaged should be repaired or replaced before the saw is used further. Check also for proper alignment of moving parts, loose mountings, or any other condition that could affect the operation of the saw.
- 1 Ensure the space allocated for use and maintenance of the saw is adequate, free from unrelated materials and has good lighting.
- 1 Remove any adjusting keys and wrenches from the machine before operating.
- 1 Wear approved eye and ear protection when operating the machine. If dust is produced, wear an approved face or dust mask.
- √ √ Keep correct footing and balance at all times.
- Always secure the workpiece in the vice.
- 1 Keep children and unauthorised persons away from the working area, especially when the saw is in operation.
- Ensure that large or oversized workpieces are supported at saw table height. Ensure you use a suitable support for any workpiece that 1 does not have a flat surface. Be cautious when cutting workpieces which are irregular in cross-section as the saw blade could be pinched before the cut is completed. Any stock such as frame moulding, must lay flat on the table surface and not be allowed to rock.
- WARNING! Round bar and tubing have a tendency to roll while being cut and cause the blade to 'bite'. DO NOT cut such items without clamping or blocking the workpiece.
- WARNING! Never force the blade through the workpiece.
- Do not use this bandsaw for anything other than its intended purpose. This bandsaw is designed for light metal cutting work in engineering X workshops, garages, metal fabricators, etc.
- WARNING! The SM4 bandsaw MUST NOT be used to cut non-metallic materials (including wood). To do so will invalidate your insurance cover and your warranty and may cause damage and/or personal injury.



- Do not wear loose or ill-fitting clothing. Remove ties, watches, rings and other jewellery. Tie up, or adequately cover, long hair.
- X Do not start the bandsaw until workpiece is secure and the blade has been lowered to just above the workpiece.
- X Do not use the bandsaw with the blade guard or pulley cover removed.
- X Do not use damaged or deformed bandsaw blades.
- ✓ Turn the bandsaw off and ensure blade has come to a complete stop **before** raising the blade.
- $\boldsymbol{X}$  Do not run the bandsaw with the blade in the raised position.
- $\boldsymbol{X}$  **Do not** use the bandsaw in wet or damp locations.
- ✗ Do not use the bandsaw in areas where fumes from paint, solvents, or flammable liquids pose a potential hazard. Keep all flammable materials (including wipes or cleaning rags) away from the saw, and dispose of according to local regulations.
- X Do not stand on the bandsaw.
- X Do not leave the bandsaw running unattended. Turn power switch OFF and do not leave area until the blade has come to a complete stop.
- X Do not use whilst under the influence of drugs, alcohol or other intoxicating medication. Do not use the bandsaw if you are fatigued.
- X Do not start accidentally. Ensure the switch is off before plugging in the saw.

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## 2. INTRODUCTION & SPECIFICATION

- 2.1 Introduction. Compact size and powerful motor make this unit suitable for the mobile workshop. Fully guarded blade with magnetic no-load voltage switch to prevent motor restart in the event of power failure or blade jam. Fitted with oil bath gearbox and life lubricated drive bearings for quiet, smooth operation. Features swivel arm facility for added versatility. Supplied with anti-vibration feet and workshop stand.

# 3. ASSEMBLY AND SETUP

### 3.1 Assembly

**Note:** Numbers in brackets refer to Parts Diagram Items. 3.1.1 Remove the unit from packing and check that all items in the

Remove the unit from p	acking and check that all items	
ollowing list are present and undamaged:		
Saw Assembly	Floor Stand Kit	
Drive Belt	Stock Stop & Rod Assembly	
Pulley Cover	Vice with Hand Wheel	
Bag of screws, Washers,	Nuts, Split Pins & Hex. Key.	

- 3.1.2 Assemble the floor stand as described below using the nuts and bolts provided. ( Refer to fig.2 )
- 3.1.3 Make one end frame by assembling two legs (102) to short upper cross member (106) using four bolts (103), four washers (29) and four nuts (4). Attach lower short cross member (104) to the inside of the legs using two bolts (103).
- 3.1.4 Create a second end frame using the same set of components.
- 3.1.5 Join the two end frames together using two long upper cross members (107) using two bolts (103) at each end of each cross member. The ends of the long cross members should pass under the ends of the short cross members (106).
- 3.1.6 Attach the two lower long cross members (105) to the inside of the frame using one bolt at the end of each.
- 3.1.7 The anti-vibration mountings (101) can either be fitted to the base of the saw or to the stand. For bench mounting and when the stand is to be secured to the floor, fit the mountings to the saw base. Where the stand is to be portable, fit the mountings to the bottom of the legs, as shown in fig.2.
- 3.1.8 Place the saw onto the stand and retain it at either end with bolt (30) and nut (4) ( see fig.2 and A in fig.3)
- 3.1.9. Slide stock stop rod (21) into vice base (36) and tighten set screw in front face of vice to retain.( See main parts diagram.)
- 3.1.10 When the saw arm is in the down position the cutting edge of the blade should be just below the main surface of the vice in order for the blade to cut all the way through the work piece. If this is not the case, loosen the lock nut (11) and adjust the stop bolt (10) so that the cutting edge of the blade is 2 to 3mm below the vice surface. Re-tighten locknut (11).
- **3.2** Adjusting blade speed (See fig.1) Adjust the blade speed to suit the metal to be cut. The recommended pulley selections are shown in the chart below.
- 3.2.1 Disconnect saw from power supply and open the pulley cover by removing the socket cap screw. (7)

Blade Size	
Blade.Speeds	0.3, 0.5, 0.8mtr/sec
Motor Power	
P.ower.Supply	
Weight	31kg



### Cutting Chart for Flat and Round Bar Recommended blade teeth per inch (tpi) for nominal cut length Cut length 6-16mm Under 8mm 4-13mm 8-22mm Трі 32 24 18 14 Cut length 10-35mm 17-40mm 25-50mm 38-75mm Tpi 10 8 6 4 Cut length 114-225mm >200mm 50-100mm 75-150mm 1.25 0.75 Tpi 3 2





- 3.2.2 Loosen the motor plate lock nuts (1) and untension the drive belt by turning the pulley tension adjuster anticlockwise. (2)
- 3.2.3 Move the belt to the required pulley grooves (see chart).
- 3.2.4 Re-tension the belt by turning the pulley tension adjuster clockwise. Tighten the motor plate locknuts.
- Close the pulley cover and secure it with the socket cap screw (7).

### 4. OPERATION

- WARNING! Before operating the bandsaw ensure that you read, understand and apply the safety instructions in Section 1.
  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.
- WARNING! The machine is designed for light metal cutting work in engineering workshops, garages, metal fabricators, etc. The SM4 must not be used to cut any other materials (including wood). To do so will invalidate your insurance cover and your warranty and may cause damage and/or personal injury.
- Note: The harder the material being cut, the slower the cutting speed should be. The use of a cutting oil is recommended with the higher blade speeds.

### 4.1 <u>CUTTING AT 90</u>°

- 4.1.1 Ensure that the saw is <u>disconnected</u> from the power supply.
- 4.1.2 Adjust the blade speed to suit the workpiece material (see para.3.3).
- 4.1.3 Lift the saw arm into the raised position.
- 4.1.4 Adjust the stock stop to the desired length. ( See B in fig.7)
- 4.1.5 Clamp the workpiece securely in the vice. If the workpiece has non-parallel sides the clamping plate can be set at an angle. Loosen the hex socket cap bolt on the moveable part of the vice and wind the clamping plate up to the workpiece where it will adjust itself to the angle of the workpiece. For additional security retighten the clamping plate bolt. To reset the clamping plate to 90° afterwards, loosen the clamp bolt and wind the plate up to the fixed plate to align it. Re-tighten the clamp plate bolt.
- 4.1.6 Adjust the left hand blade guide assembly by loosening the clamp knob (see fig.6), and sliding it as close to the workpiece as possible without fouling it. Re-tighten the clamp knob. The right hand blade guide assembly is non-adjustable in relation to the workpiece.
- 4.1.7 Reconnect the saw to the power supply.
- 4.1.8 Gently lower the arm until the blade is just above the workpiece before switching on.
- 4.1.9 Switch on and bring the blade into contact with the workpiece and then release the
- arm. If the blade jams, switch off immediately and disconnect it from the power supply.
- Refer to the TROUBLESHOOTING section for common problems.
- 4.1.10 When sawing is completed disconnect from the power supply, raise blade and remove workpiece.
- 4.2 <u>CUTTING AT AN ANGLE (refer to figs.1 & 4)</u>
- 4.2.1 The entire cutting arm can be rotated by up to 45° as shown in fig.4 to achieve an angled cut and can be set at any angle between 90° & 45°.
- 4.2.2 Ensure that the saw is <u>disconnected</u> from the power supply.
- 4.2.3 Adjust the blade speed to suit the workpiece material (see para.3.2).
- 4.2.4 In the normal 90° cutting position the zero mark on the scale on the angle plate (see fig.1) should be aligned with the fixed pointer (4). If this is not the case loosen the angle clamp (5) and screw the adjuster (6) in or out until until the zero and the pointer are aligned.
- 4.2.5 <u>Before</u> turning the cutting arm to an angle loosen the clamp on the stop stock and turn it to point downwards away from the blade.
- 4.2.6 <u>Before</u> clamping the workpiece in the vice loosen the angle clamp and swivel the cutting arm to the angle required and retighten the angle clamp
- 4.2.7 Adjust the stock stop if required and then clamp the workpiece securely in vice as described above.
- 4.2.8 Reconnect the saw to the power supply.
- 4.2.9 Gently lower the arm until the blade is just above the workpiece before switching on.
- 4.2.10 Switch on and bring the blade into contact with the workpiece and then release the arm. If the blade jams, switch off immediately and disconnect it from the power supply. Refer to the TROUBLESHOOTING section for common problems.
- 4.2.11 When sawing is completed disconnect from the power supply, raise blade and remove the workpiece.
- WARNING! Never raise blade when machine is running and never run machine when blade is raised.

# 5. BLADE CHANGING & ADJUSTMENTS

- WARNING! BEFORE MAKING ANY ADJUSTMENTS, DISCONNECT SAW FROM POWER SUPPLY.
- 5.1 All adjustments that relate to the smooth and safe running of the blade have been set at the factory. However, if you require to replace a blade due to it being worn out or if you need to change to a blade with a different tooth size it will be necessary to readjust the saw.
- 5.2 CHANGING & TENSIONING THE BLADE :
- WARNING! Take care when handling saw blades, blade teeth are very sharp.
- 5.2.1 Move the sawing arm to the raised position .
- 5.2.2 The blade safety cover is held on with three hex socket cap screws. Remove these screws and the safety cover.





- 5.2.3 Before the blade can be removed release the tension on the blade by turning the blade tension knob (fig.5 1) anticlockwise.
- 5.2.4 Remove the upper blade guide (2) which is held by a single hex socket cap screw.
- 5.2.5 Ease the blade away from the lowest pulley wheel first and support it as you remove it from the upper pulley wheel then carefully remove the blade from between the guides.
- 5.2.6 Place the new blade through the guides first and then ease it around the lower pulley wheel. (Ensure that the tooth direction is consistent with the blade travelling left to right in the cutting area.) Retain the blade on the lower pulley with one hand and take up the tension at the top of the blade with the other hand. Then use both hands to ease the blade over the upper pulley.
- 5.2.7 Begin to tension the blade by turning the knob (1) clockwise but as you do so make sure that the back edge of the blade is seated against the rim of both pulleys. Check that the blade is seating properly by turning the upper pulley by hand ( using the three spokes of the wheel ) until you have observed a full rotation of the blade. (An alternative way to rotate the blade is to open the pulley cover and turn one of the belt pulleys.)
- 5.2.8 Once the blade is properly aligned increase the tension until the blade flexes by approx.1mm when pressed at the midway point between the two pulleys.5.2.9 Replace the blade guard (2).
- 5.2.10 Replace the blade protection safety cover and secure it with the three screws.
- 5.2.11 Reconnect the saw to the power source and run it for two to three minutes to seat the blade.
- 5.2.11 Reconnect the saw to the power source and run nor two to three minutes to seat the blade.5.2.12 Disconnect the saw from the mains. Take off the blade back safety cover and recheck the tension and adjust if required. Replace safety cover.

### 5.3 BLADE TRACKING ADJUSTMENT

Adjustment of the blade tracking is necessary to prevent the blade from twisting or coming off the blade wheels. This adjustment should also be made whenever a new blade is fitted (see section 5.2).

- 5.3.1 Run saw for a short time and then switch off.
- 5.3.2 Raise saw arm, release blade safety panel and check blade-to-wheel relationship. Rear edge of blade should be very close to, but not hard against, the wheel flanges.
- 5.3.3 If inspection indicates that adjustment is required reduce blade tension (see para. 5.2.3.) and loosen the blade tracking lock nut as seen in fig.6 using a 6mm hex tool.
- 5.3.4 Place a 6mm hex tool into the adjuster and rotate in or out as required whilst rotating the upper pulley by hand (using the three spokes of the wheel) until tracking appears corrected. Re-tighten the blade tracking lock nut.
- 5.3.5 Having made a small adjustment, tension blade, **replace blade cover, lower arm** and run saw for a short time.
- 5.3.6 Switch saw off, remove blade cover and check tracking. Repeat adjustment procedure if necessary.

### 5.5 BLADE GUIDE ASSEMBLY ADJUSTMENT

- 5.5.1 Both the left hand and right hand blade guide assemblies contain five bearings in all. The back of the blade runs on a single bearing whilst the sides of the blade are guided by two pairs of bearings placed either side of the blade. The bearings themselves have a preset relationship to each other and cannot be adjusted but the whole blade guide assembly itself can be adjusted in relation to the blade as described below.
- 5.5.2 Disconnect the machine from the power supply.
- 5.5.3 To adjust the right hand blade guide assembly loosen the bolt indicated by (A) in fig.7. and allow the single bearing which runs on the back of the blade to rest on the blade without exerting any pressure.
- 5.5.4 Rotate the blade guide (as shown in fig.7) until blade is perpendicular to main surface of the clamping vice.
- 5.5.5 Retighten the hex bolt ensuring that no pressure is applied to the back of the blade. Adjust the left hand blade guide in the same manner.

### 5.6 CUTTING / FEED PRESSURE

The weight of the cutting arm itself applies pressure to the cutting blade and therefore to the workpiece. A spring is attached to the arm pivot rod (see fig.8) which can be set in one of three holes to alter the feed pressure. The hole nearest to the bed gives the greatest spring pressure. As the spring pressure is increased the cutting pressure is decreased.

- 5.6.1 If the saw is making crooked or rough cuts or overheating is occurring it may be necessary to decrease the feed pressure by moving the end of the spring to a hole nearer to the bed.
- 5.6.2 If the saw blade becomes dull quickly it may be necessary to increase the feed pressure by moving the end of the spring to a hole further away from the bed of the saw.

# □ WARNING! Once the spring end has been released from a hole the spring will attempt to unwind. Wear protective gloves and grip the spring with a mole wrench. Do not put your hands near the spring.





**BLADE GUIDE CLAMP KNOB** 





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# 6. MAINTENANCE

- 6.1 Clean saw after each operation and smear unpainted surfaces with oil to prevent rusting.
- Lubricate vice lead screw (37) as necessary.
- 6.2 Annually replace gearbox oil (SAE 90) as follows: (Have a small container and some absorbent material available for any spillage.)
- 6.2.1 With the arm in the down position remove the gearbox cover (50) and seal (51).
- 6.2.2 Place oil container under right hand lower corner of gearbox and then carefully raise saw arm fully to drain oil.
- 6.2.3 Lower saw arm, remove any remaining oil from gearbox with clean cloths and then refill with fresh oil. Replace cover and gasket.

### TROUBLESHOOTING 7. Excessive blade breakage and/or Workpiece is loose in the vice. 1. Clamp the workpiece securely. Adjust the speed or feed to suit the workpiece. teeth ripping from the blade. 2. Incorrect speed or feed. 2. 3 Blade is too coarse 3 Replace with a finer blade. 4 Workpiece material is too coarse. Use the saw at slower speed and use a smaller tpi blade. 4 5. Incorrect blade tension. 5 Adjust blade tension so that it does not slip on the wheel. 6. Blade is in contact with workpiece before Place blade in contact with the workpiece only after the saw has 6. saw is started. started. 7 7 Blade is rubbing on the wheel flange. Adjust blade wheel alignment. 8. Blade guides are misaligned. 8 Adjust blade guide alignment. 9. Blade is too thick. 9 Use correct thickness blade 10. Bad weld on blade 10. Re-weld or replace blade 1 Replace with a smaller tpi blade. Premature blade dulling. 1. Blade tpi is too high. 2. Incorrect speed - too fast. 2 Reduce speed. 3. Inadequate feed pressure. 3. Increase feed pressure by decreasing the spring tension on the arm 4. Hard spots or scale on the workpiece. 4 Reduce speed, increase feed pressure. 5 Blade is twisting. 5 Replace blade and adjust to the correct tension. Insufficient blade tension. 6. 6 Increase blade tension 7. Blade is slipping. 7 Increase blade tension and reduce speed. Replace blade guides. Unusual wear on side or back of 1. Blade guides are worn. 1. blade 2 Blade guides are misaligned. 2 Adjust guide pivots 3 Blade guide brackets are loose. 3 Tighten blade guide brackets. Motor overheating 1. Blade tension too high 1. Reduce blade tension. 2. Drive belt tension too high. 2. Reduce drive belt tension. 3 Blade too coarse or too fine. 3 Use a blade more suitable for the workpiece. Gears need lubrication Lubricate the gears. 4 4 5. Blade is binding in the cut. 5. Decrease feed and speed. 1. Feed pressure too great. 1. Reduce feed pressure by increasing the spring tension on the Bad, crooked or rough cuts. arm 2 2. Blade guides are misaligned. Adjust blade guides Inadequate blade tension. Increase blade tension. 3. 3. 4. Blade is dull. Replace the blade. 4 Adjust the speed. 5 Incorrect speed. 5 6. Blade guides are spaced out too far. 6 Adjust guide spacing Blade guide assembly is loose. 7. 7 Tighten the guide assembly. 8. Blade is too coarse. Use a finer blade. 8 Decrease feed pressure. Blade is twisting 1 Blade is binding in the cut. 1 2 Decrease blade tension. Blade tension is too high. 2

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.

INFORMATION: For a copy of our latest catalogue and promotions call us on 01284 757525 and leave your full name and address, including postcode.

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