



# METALWORKING MINI LATHE 250MM & OPTIONAL DRILL HEAD

MODEL NO: **SM2503A / SM2503B**

Thank you for purchasing a Sealey 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:** 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.

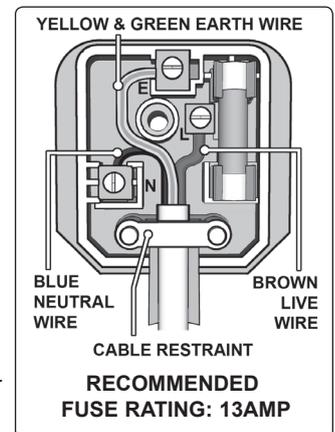


**Note:** Drill Head SM2503B must be powered by SM2503A only. DO NOT connect directly to the mains.

## 1. SAFETY

### 1.1. ELECTRICAL SAFETY

- WARNING!** It is the user's responsibility to check the following:
  - ✓ Check all electrical equipment and appliances to ensure that they are safe before using. Inspect power supply leads, plugs and all electrical connections for wear and damage. Sealey recommend that an RCD (Residual Current Device) is used with all electrical products. You may obtain an RCD by contacting your local Sealey stockist.
  - NOTE:** If the product is used in the course of business duties, it must be maintained in a safe condition and routinely PAT (Portable Appliance Test) tested.
- 1.1.1. Electrical safety information, it is important that the following information is read and understood.
  - ✓ Ensure that the insulation on all cables and on the appliance is safe before connecting it to the power supply.
  - ✓ Regularly inspect power supply cables and plugs for wear or damage and check all connections to ensure that they are secure.  
**IMPORTANT:** Ensure that the voltage rating on the appliance suits the power supply to be used and that the plug is fitted with the correct fuse - see fuse rating in these instructions.
  - ✗ **DO NOT** pull or carry the appliance by the power cable.
  - ✗ **DO NOT** pull the plug from the socket by the cable.
  - ✗ **DO NOT** use worn or damaged cables, plugs or connectors. Ensure that any faulty item is repaired or is replaced immediately by a qualified electrician.
- 1.1.2. This product is fitted with a BS1363/A 13 Amp 3 pin plug.
- 1.1.3. If the cable or plug is damaged during use, switch off the electricity supply and remove from use.
  - ✓ Ensure that repairs are carried out by a qualified electrician.
  - ✓ Replace a damaged plug with a BS1363/A 13 Amp 3 pin plug. If in doubt contact a qualified electrician.
    - 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'.
  - ✓ Ensure that the cable outer sheath extends inside the cable restraint and that the restraint is tight.
  - ✓ Sealey recommend that repairs are carried out by a qualified electrician.



### 1.2. GENERAL SAFETY

- WARNING!** Disconnect the lathe from the mains power and ensure that the chuck or face plate is at a complete standstill before attempting to change accessories, service or perform any maintenance.
- ✓ Maintain the lathe and drill head in good condition (use an authorised service agent).
- ✓ Replace or repair damaged parts. *Use recommended parts only. Unauthorised parts may be dangerous and will invalidate the warranty.*
- ✓ Locate the lathe and drill head in a suitable area. Ensure that the mounting surface is level and firm. Keep the area clean and tidy and free from unrelated materials, and ensure that there is adequate lighting.
- ✓ Keep the lathe and drill head clean for best and safest performance.
- WARNING!** Before each use check that face plate/chuck, cutting tool and tailstock are secure and not worn or damaged. If any part of the lathe or drill head is worn or damaged replace immediately.
- WARNING!** Keep chuck guard and holding fixings in place, tight and in good working order. The safety micro switch ensures that the lathe and drill head will not operate when the chuck guard is raised. Check regularly for damaged parts. A chuck guard that is damaged or missing must be repaired or replaced before the lathe and drill head are next used.
- WARNING! DO NOT** over-ride the chuck guard safety micro switch.  
**IMPORTANT:** Always ensure the Drill/Mill protection guard is in place before use.
- ✓ Remove adjusting keys and wrenches from the lathe and drill head and its vicinity before turning it on.
- WARNING!** Wear approved safety eye protection and, if oil mist is generated, respiratory protection.
- ✓ Remove ill fitting clothing. Remove ties, watches, rings and other loose jewellery and contain long hair.

- ✓ Keep hands and body clear of the workpiece when operating the lathe and drill head.
- ✓ Maintain correct balance and footing. Ensure that the floor is not slippery and wear non-slip shoes.
- ✓ Keep children and unauthorised persons away from the work area.
- ☐ **WARNING! DO NOT** switch on the lathe or drill head whilst the cutting tool is in contact with the workpiece. Bring the cutting tool gradually to the workpiece.
- ✓ Avoid unintentional starting of the lathe and drill head.
- ✗ **DO NOT** use the lathe or drill head for a task it is not designed to perform.
- ✗ **DO NOT** allow untrained persons to operate the lathe or drill head.
- ✗ **DO NOT** get the lathe or drill head wet or use in damp or wet locations or areas where there is condensation.
- ☐ **WARNING! DO NOT** use the lathe or drill head where there are flammable liquids, solids or gases such as petrol, paint solvents, waste wiping rags etc.
- ✗ **DO NOT** operate the lathe or drill head if any parts are missing or damaged as this may cause failure and/or personal injury.
- ✗ **DO NOT** lift or remove the chuck guard whilst the lathe is in use.
- ✗ **DO NOT** touch the workpiece close to the cut as it will be very hot. Allow to cool.
- ✗ **DO NOT** leave the lathe or drill head running unattended.
- ✗ **DO NOT** operate the lathe or drill head when you are tired or under the influence of alcohol, drugs or intoxicating medication.
- ✓ When not in use switch off the lathe and isolate from the power supply.

## 2. INTRODUCTION

### SM2503A METAL WORKING MINI LATHE 250MM

Bench mounting miniature lathe, small enough to fit into the corner of a workshop and light enough to be truly portable. Construction is predominately cast iron and steel. Fitted with 150W high torque motor. The capacities are 150mm swing over bed and 250mm between centres. Features variable speed control, manual or powered lead screw feed and over-load protection. Supplied with Ø80mm 3-jaw self centring chuck, tailstock centre and service tools. An extensive range of accessories are available from your Sealey stockists. Option to upgrade with a mill/drill head - order **Model No. SM2503B**.

### SM2503B DRILL HEAD (Only to be used in conjunction with SM2503A) Never plug into mains supply

Transforms Model no:SM2503A Metal Working Mini Lathe into a Lathe/Mill Drill combination. Easily retrofitted, this drill head offers the flexibility to handle most materials. This space efficient versatile lathe mill/drill machine features a 150W motor.

## 3. SPECIFICATION

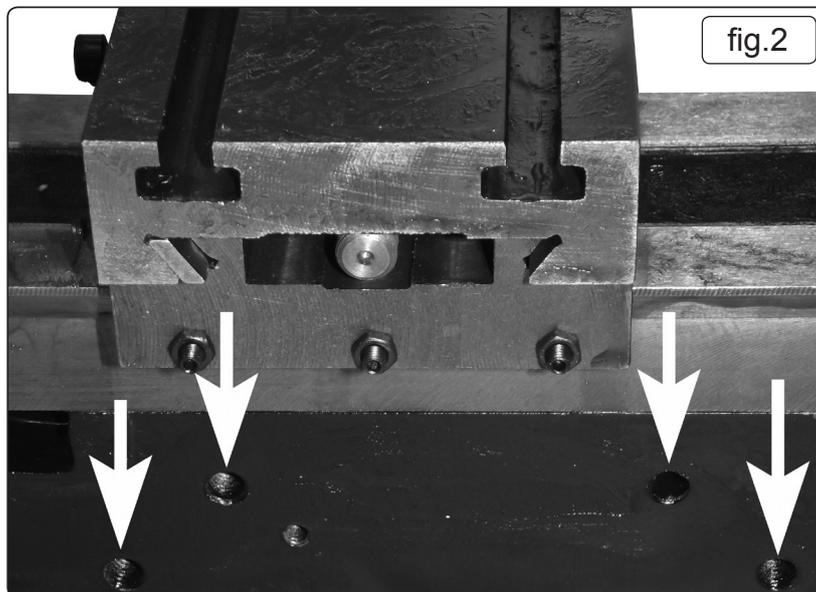
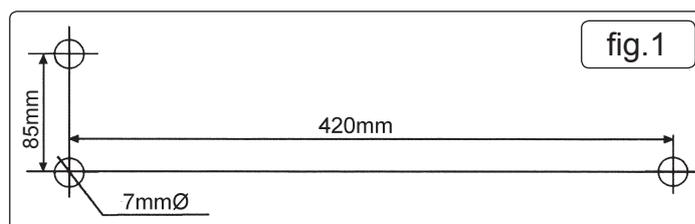
Model No:.....**SM2503A**  
 Swing Over Bed: .....150mm  
 Distance Between Centres:.....250mm  
 Spindle Hole Taper:..... MT2  
 Cross Slide Travel:.....50mm  
 Tailstock Taper: ..... MT1  
 Tailstock Travel .....20mm  
 Spindle Speed (variable):..... 100-2000rpm  
 Range of Metric Threads:..... 5 pitches (0.5-1.25mm)  
 Motor Power:..... 150W-230V  
 Nett Weight: .....26kg

### Drill head sold separately only as an accessory for SM2503A

Model No:.....**SM2503B**  
 Max/Min Drilling/Milling Capacity:..... 10mm  
 Drilling/Milling Spindle Travel:..... 30mm  
 Spindle Taper: ..... MT2  
 Drilling/Milling Spindle Speed:..... 100-1300rpm  
 T-Slot: ..... 8mm  
 Distance from Spindle to Table:..... 180mm  
 Distance from Spindle Centre to Column: ..... 100mm  
 Motor Power:..... 150W-230V  
 Nett Weight: ..... 14kg

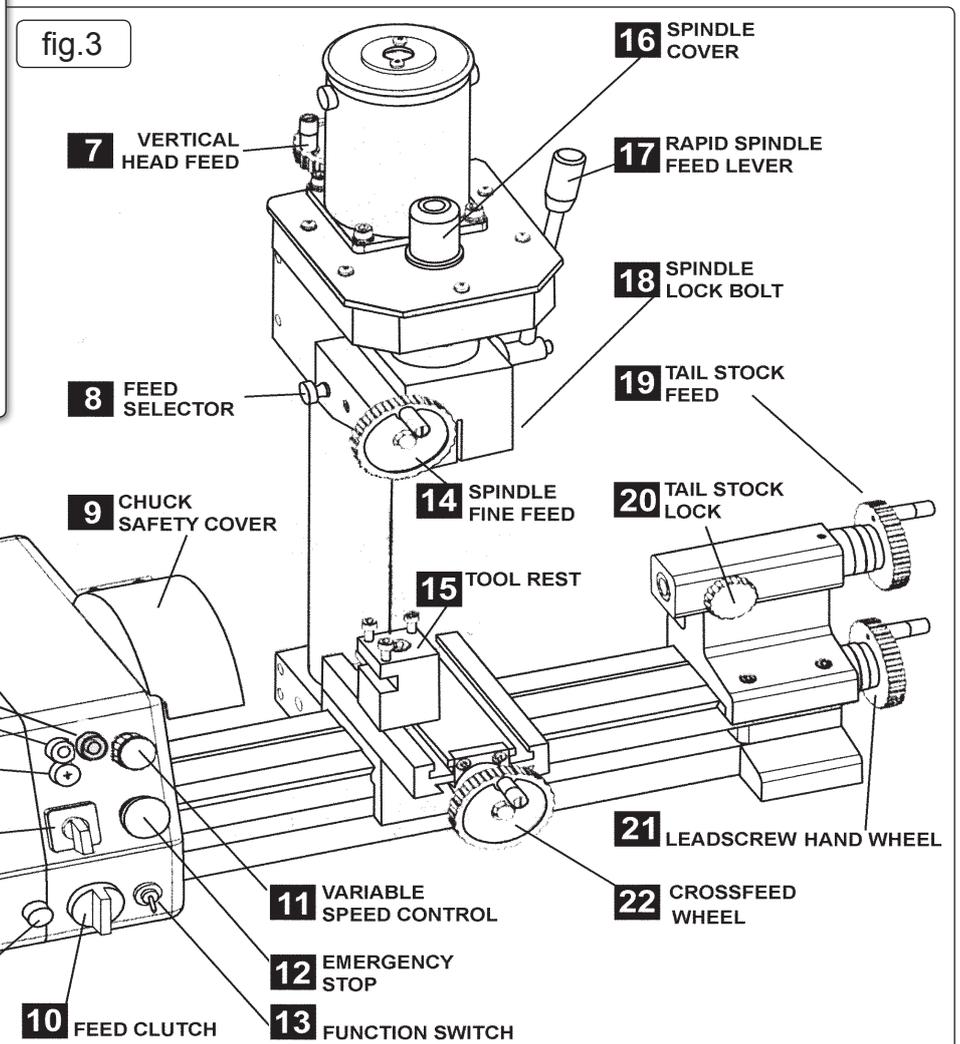
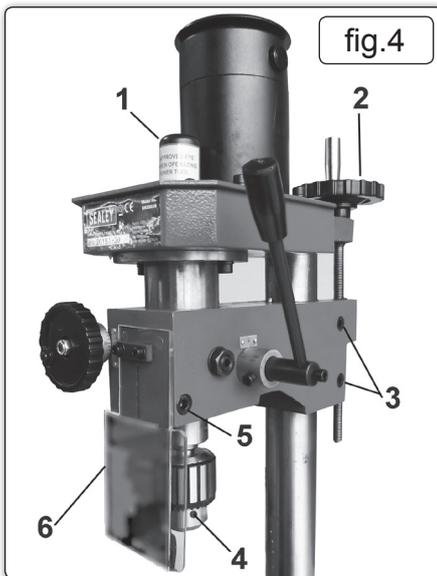
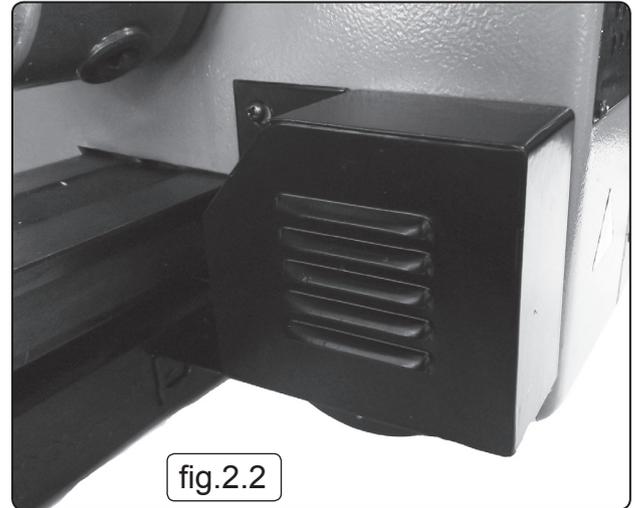
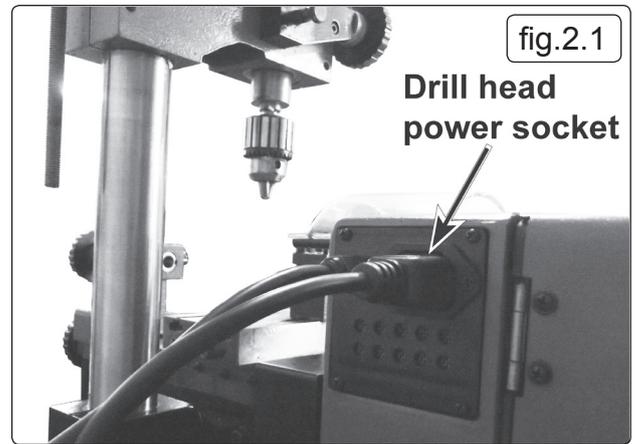
## 4. ASSEMBLY LATHE

- ☐ **WARNING! At least two people are required to move the lathe. Good lifting practice must be adhered to.**
- 4.1. Unpack and check that everything is present and undamaged.
- 4.2. The machine has been coated with heavy grease to protect it in shipping. Remove the coating with a clean cloth before operating. After cleaning, coat the machined surfaces with a medium consistency machine oil.
- 4.3. **MOUNTING THE MACHINE**  
**IMPORTANT:** If you are fitting the drill head (not supplied) to the lathe, do this before securing the lathe to a bench, two people required.
  - ✓ Locate the machine on a level and strong work surface.
  - ✗ **DO NOT** locate in direct sunlight or where heavy dust or moisture is present.
- 4.3.1. Drill the location holes in accordance with the dimensions shown in (fig.1) and bolt the machine to the bench from underneath, securely using three M6 bolts (not provided.)
- 4.3.2. Fit the chuck safety cover with screws provided.
- 4.3.3. Fit handles to the handwheels.



## 5. RETRO FIT OF DRILL HEAD

- ❑ **WARNING!** At least two people are required to move and attach the drill head. Observe good lifting practice.  
**NOTE:** If the lathe is secured to a bench, unattach the lathe from the bench before attaching the drill, then resecure to bench once drill is fitted.
- 5.1. Refer to sections 4.1 and 4.2. for unpacking and cleaning instructions.
- 5.2. Remove the drip tray and motor cover from the lathe and fit the small motor cover (fig 2.2) supplied with **Model No.SM2503B**.
- 5.3. Bolt the drill head to the rear of the lathe using the four hex headed screws and washers (provided), (fig.2).  
**NOTE:** it may be necessary to move the drill head up the post so that it clears the tool rest on the lathe.
- 5.4. Fit the rapid spindle feed lever (fig.3.17).
- 5.5. Fit the drill chuck protection guard (fig.4.6).
- 5.6. Plug in the power lead (socket is located on the rear of SM2503A), (fig.2.1).  
**NOTE:** Drill head must be powered by the SM2503A only.
- ▲ **DANGER! DO NOT connect directly to mains power.**



1 MILL/DRILL POWER SOCKET

2A FAULT LAMP

2 POWER LAMP

3 HOLDER FUSE

4 FORWARD OFF/REVERSE SWITCH

5 GEAR COVER

6 GEAR COVER RELEASE SCREW

9 CHUCK SAFETY COVER

8 FEED SELECTOR

7 VERTICAL HEAD FEED

10 FEED CLUTCH

11 VARIABLE SPEED CONTROL

12 EMERGENCY STOP

13 FUNCTION SWITCH

14 SPINDLE FINE FEED

15 TOOL REST

16 SPINDLE COVER

17 RAPID SPINDLE FEED LEVER

18 SPINDLE LOCK BOLT

19 TAIL STOCK FEED

20 TAIL STOCK LOCK

21 LEADSCREW HAND WHEEL

22 CROSSFEED WHEEL

## 6. SET UP AND OPERATION

*It is assumed that the operator has some experience of machining practice and therefore these instructions are intended only to describe the features of the machine. If you have no experience of machining it is recommended that you undertake a training course or seek advice from an experienced source.*

### PROCEED TO SECTION 6.17 FOR SETTING UP FOR CUTTING ON THE LATHE

- **WARNING!** Before operating the drilling/milling machine ensure you are wearing approved safety goggles and gloves to protect you from swarf and metal particles. If using cutting oil or coolant a face mask may be necessary to avoid breathing any vapour generated.
- ✓ Ensure that all other safety instructions in chapter 1 are followed carefully.
- 6.1. **SETTING UP FOR MILLING (Disconnect the machine from the power supply whilst setting up.)** The machine is supplied without milling cutters. Contact your local Sealey Stockist for a full range of accessories.
- 6.2. **MOUNTING THE CUTTING TOOL** If the drill chuck and arbor are currently mounted, remove them by the following method. Access the arbor bolt by pulling off the plastic cap (fig.4.1) which covers the top of the spindle shaft and place an 8mm spanner onto the flats at the top of the shaft. Insert a rod into the hole in the side of the spindle shaft (fig.4.4) to prevent it turning and loosen the arbor bolt by two turns. Give the arbor bolt a sharp tap with a rubber mallet in order to release the arbor from the internal taper. Continue to unscrew the arbor bolt by hand whilst supporting the drill chuck and arbor until they become loose and can be removed.
  - 6.2.1. Select the cutting tool for the work in hand and the appropriate arbor or collet.

**Wear protective gloves at all times especially when handling the cutter.** Introduce the cutter assembly into the spindle sleeve and hold it in place whilst the arbor bolt is tightened by hand. Insert a rod into the hole in the side of the spindle shaft to prevent the spindle rotating and tighten the arbor bolt with a spanner (do not overtighten). Remove the rod and replace the plastic cap.
- 6.3. **ATTACHING THE WORKPIECE** The workpiece will be mounted to the crossfeed table utilising the 8mm 'T' slots provided for the tool rest.
- 6.4. **SETTING AND LOCKING THE CUTTER HEIGHT** Once the workpiece and cutter are mounted, the cutter can be lowered to the correct position to achieve the desired cut. The spindle shaft vertical movement is 30mm. If this does not bring the cutter into the vicinity of the workpiece the whole head can be moved down the column to achieve the desired cutter position. Adjust cutter and head height as described below. To ensure accuracy during milling the cutter height setting must then be locked as described below.
- 6.5. **SETTING THE HEAD HEIGHT** The overall height of the head on the column can be altered by using the head vertical feed wheel (fig.4.2). To alter the head height first loosen the two socket cap bolts adjacent to the vertical leadscrew (fig.4.3). Use the handwheel to move the head to the desired height and tighten the socket cap bolts to lock the head in position.
- 6.6. **ENGAGING VERTICAL FINE FEED** The drilling/milling spindle travel is controlled for milling purposes by the fine feed wheel (fig.3.14). To engage the fine feed wheel push the feed selector knob (fig.3.8) inwards. This action automatically disengages the rapid spindle feed lever (fig.3.17). Once the spindle/cutting tool has been moved to the correct height it can be locked in this position by tightening the socket cap bolt on the right hand side of the head (fig.4.5).
- 6.7. **CALIBRATED FEED** Each feed wheel has an adjustable calibration ring situated on the feed shaft immediately behind the wheel. The rings can be rotated by hand and set to an adjacent mark in order to execute a cut of a specific depth. The longitudinal feed ring has 30 divisions to one full rotation of the wheel. One segment represents a movement of 0.05mm. The cross feed ring has 50 divisions to one full rotation of the wheel. One segment represents a movement of 0.02mm. The longitudinal feed ring has 35 divisions to one full rotation of the wheel. One segment represents a movement of 0.05mm.
- 6.8. **MAIN ON/OFF SWITCH WITH SPEED CONTROL AND EMERGENCY SHUT OFF**
  - 6.8.1. Connect the machine to the mains power supply. The green power lamp (fig.3.2) will illuminate.
  - 6.8.2. The function switch (fig.3.13) allows you to select either **milling/drilling** or **cutting** on the lathe. The switch has a central OFF position. Set the switch to milling/drilling.
  - 6.8.3. Select the direction of rotation (forward for milling/drilling) using the forward/OFF/reverse switch (fig.3.4).
  - 6.8.4. If the light does not illuminate release the emergency off switch (fig.3.12) by twisting the button clockwise until it disengages.
  - 6.8.5. Rotate the rotary speed switch slowly clockwise (fig.3.11). As the knob is turned a click will be heard and the motor will start. As the knob is turned further the speed will increase. Set the knob to the desired speed.
  - 6.8.6. **STOP MODES** There are three 'stop' modes as described below:
    - (A) To stop the machine for a short while and then restart, simply return the rotary speed switch (fig.3.11) to the '0' position. When you are ready to restart, rotate the switch clockwise to the desired speed.
    - (B) If the machine is to be left unattended for any length of time, switch the forward/reverse switch to 'OFF' (fig.3.4) as well as returning the speed switch (fig.3.11) to '0'.
    - (C) In an emergency hit the large red emergency button (fig.3.12) which automatically cuts the electrical supply to the machine. Before the machine will start again the rotary speed switch (fig.3.11) must be returned to the '0' position and the emergency switch (fig.3.12) must be released.
  - 6.8.7. In case of an irregularity, the machine will shut off (the emergency switch will cut the power). Once the emergency stop button is released, the fault light (fig.3.2A) will illuminate. In order to restart the process, attend to what caused the irregularity, turn the forward/reverse switch (fig.3.4) to the off '0' position, turn the speed switch (fig.3.11) to '0' and turn the emergency switch (fig.3.12) clockwise. The fault light should go out and the machine can be started as in section 6.8.5. above.
- 6.9. **SETTING UP FOR DRILLING (Disconnect the machine from the power supply while setting up)**
- 6.10. **ENGAGING RAPID DRILL FEED** The rapid drill feed is controlled with the lever on the right hand side of the head, (fig.3.17.) The rapid drill feed will not operate if the vertical fine feed wheel used for milling is still engaged. To make the rapid drill feed operative pull the feed selector knob outwards (fig.3.8).
- 6.11. **MOUNTING THE CHUCK AND ARBOR** If the milling cutter and arbor are currently mounted (refer to section 6.2).
- 6.12. Insert the chuck arbor into the bottom of the spindle shaft and retain it with the arbor bolt. Do not over tighten. The drill chuck is a shallow taper fit onto the end of the drilling arbor. Using the chuck key open the jaws of the chuck until they withdraw inside the chuck body. Place a piece of wood onto the cross feed bed and position the chuck on it below the spindle shaft. Using the drill feed, wind the spindle shaft down until the arbor enters the chuck. Exert firm but not excessive downward pressure on the chuck to retain it on the arbor.
- 6.13. **DRILL BITS** Insert an appropriate drill bit into the chuck and tighten the chuck with the chuck key. Remove the chuck key.
- 6.14. **ATTACHING THE WORKPIECE** The cross feed bed of the machine has 2 inverted 8mm 'T' slots in it for fixing the workpiece or any vice/clamping arrangement used to hold the workpiece.
- 6.15. **ALTERING THE HEIGHT OF THE HEAD** If the tip of the drill bit is not close enough to the workpiece alter the height of the head on the column as described in section 6.5.
- 6.16. **SPEED CONTROL AND ON/OFF OPERATION** Refer to section 6.8 for the operation of the main ON/OFF switch and speed setting.
  - 6.16.1. Avoid subjecting drills and cutting tools to excessive strain. **DO NOT** apply undue force on the handle in order to cut the workpiece. Maintain a controlled cutting speed through the workpiece.

- 6.17. SETTING UP FOR CUTTING ON THE LATHE (Disconnect the machine from the power supply while setting up)**
- 6.18. THE CHUCK** is attached to the faceplate with 3 studs and nuts. Check that these fixings are secure before proceeding. The chuck is provided with two sets of jaws for either external or internal holding of objects to be turned. Select and fit the appropriate jaws. Using the chuck key wind out the jaws to their maximum extent at which point they can be pulled out by hand. The thread segments are staggered differently on each jaw and therefore the jaws are numbered 1 to 3. Insert the jaws in sequence beginning with No1 and in an anti clockwise direction as you face the chuck. Hold them under pressure whilst turning the key until they are picked up by the mechanism and start to move towards the centre of the chuck. Check that the three jaws come together correctly at the centre of the chuck. If not, wind the jaws out again and press on the misaligned jaw until it drops into place.
- 6.19. TAILSTOCK/CENTRE** Material/stock that is too long to be held in the chuck alone can be steadied by a centre fitted into the tailstock. Once one end of the workpiece is fixed into the chuck loosen the two socket cap screws holding the tailstock and slide it up to the unsupported end of the workpiece so that the centre is close to it. Tighten the tailstock socket cap screws. Now wind the tailstock wheel so that the centre makes contact with the end of the workpiece and lock its position by tightening the tailstock lock, (fig.3-20.)
- 6.20. TOOLREST** Mount the toolrest utilising the 'T' slots in the cross feed table. Insert an appropriate cutting tool into the split carrier and mount the tool and carrier into one side of the toolrest. Now make any necessary adjustments to the position of the toolrest and carrier to allow the cutting edge of the tool to be correctly presented to the workpiece. The tool should be cutting in a plane that passes through the centre axis of the workpiece or just below it.
- 6.20.1. The angle of the tool when viewed from above may be changed by loosening the central holding bolt on the toolrest and twisting the whole rest on the bed to obtain the desired angle.
- 6.20.2. One side of the toolrest will clamp the tool and carrier parallel to the bed of the machine. On the other side of the toolrest the tool and carrier rests on a contoured block which allows the tool to be inclined upwards or downwards by a few degrees. The angle of tilt is controlled by adjusting the two socket cap bolts which bear on the tool carrier.
- 6.20.3. Adjust the crossfeed wheel and longitudinal feed so that the tip of the tool is in the correct position to commence cutting when the machine is turned on. Before turning on check that all fixings holding the tool are tight.
- 6.21. STARTING THE MACHINE** Lower the guard over the chuck. (The machine will not start with the guard in the up position.) Check that the function switch (fig.3-13) is set to 'cutting'.
- 6.21.1. Select either manual cutting or automatic feed using the clutch knob, (fig.3-10). (When selecting autofeed it may be necessary to rotate the leadscrew hand wheel (fig.3-21) slightly before the clutch will engage.)
- 6.21.2. Select the direction of cut using the forward/reverse switch. When using autofeed ensure that the saddle/cross feed/toolrest are positioned at the intended start of the cut and that the correct direction has been selected. In general the cut will usually start from the tailstock direction and progress towards the chuck.
- 6.21.3. Turn the machine on using the variable speed control. Rotate the knob clockwise until the desired speed is reached. Refer to section 6.8 for a full description of the on/off operation.
- WARNING!** The machine should never be left unattended whilst switched on during manual or automatic operation. In particular when a cut is in progress using autofeed the operator must observe the entire cut and be on hand to switch the machine off as the cutting tool approaches the chuck or other holding devices. Failure to do this may result in damage to the machine and will invalidate the warranty.

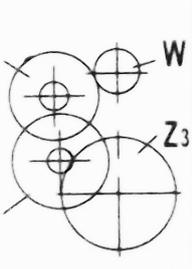
**fig.5**

		<b>0.5</b>	<b>0.7</b>
<b>W</b>		36	36
<b>Z<sub>1</sub></b>		24 42	24 40
<b>Z<sub>2</sub></b>		40 60	42 45
<b>Z<sub>3</sub></b>		72	72
		<b>0.8</b>	<b>1.0</b>
<b>W</b>		36	36
<b>Z<sub>1</sub></b>		24 42	24 42
<b>Z<sub>2</sub></b>		40 45	40 48
<b>Z<sub>3</sub></b>		60	45
		<b>1.25</b>	
<b>W</b>		36	
<b>Z<sub>1</sub></b>		24 42	
<b>Z<sub>2</sub></b>		50 48	
<b>Z<sub>3</sub></b>		45	
		<b>0.05</b>	<b>0.10</b>
<b>W</b>		36	36
<b>Z<sub>1</sub></b>		24 72	24 54
<b>Z<sub>2</sub></b>		76 19	60 19
<b>Z<sub>3</sub></b>		90	76

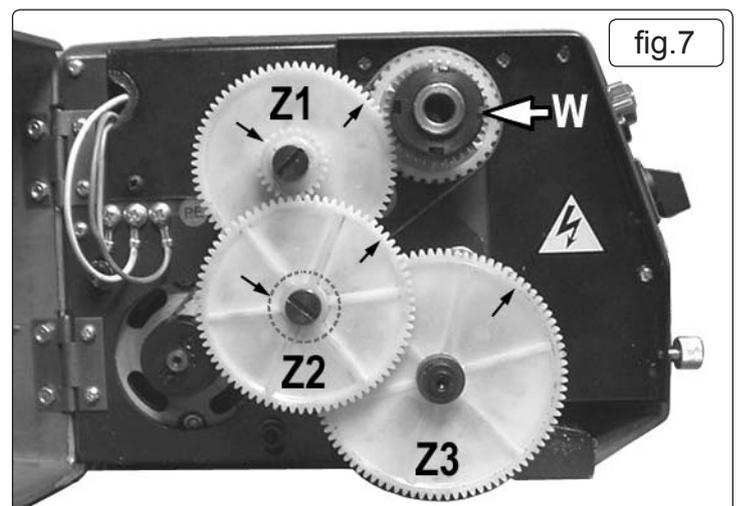
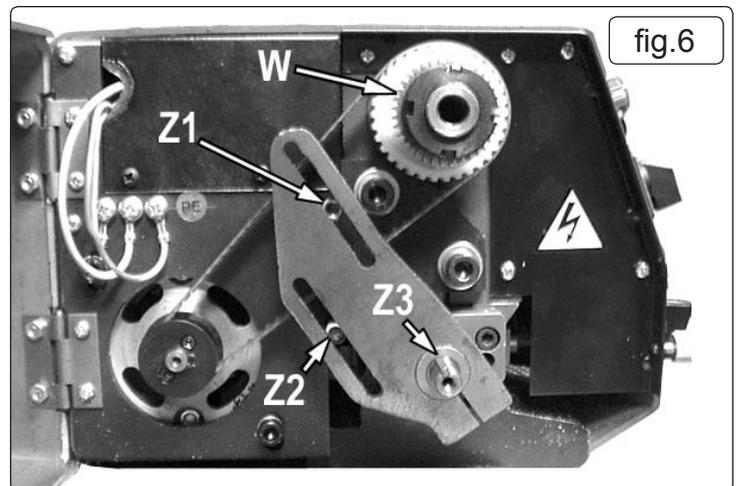
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Z<sub>1</sub> W Z<sub>3</sub> Z<sub>2</sub>



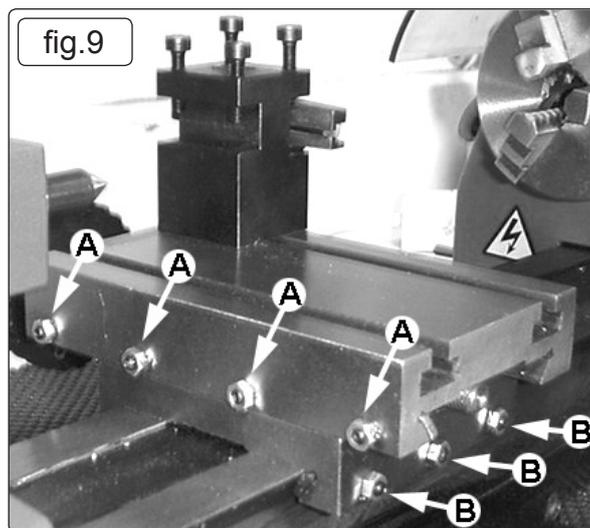
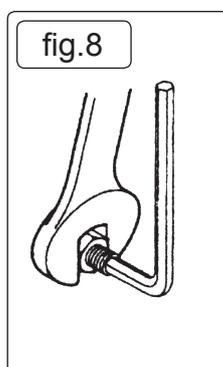
mm/r



- 6.22. AUTOFEED RATE/THREAD CUTTING** The machine is supplied with a gear set which gives a cutting rate of 0.05mm per single chuck rotation when autofeed is selected. (See fig.7 and the standard gear set up highlighted in the gear ratio table.) By purchasing the optional metric thread cutting kit (Part No.SM2503TCK) the machine becomes capable of an additional autofeed rate of 0.01mm per chuck rotation and will cut metric thread pitches 0.5/0.7/0.8/1.0 & 1.25mm as indicated in the gear ratio table.
- 6.23. CHANGING GEAR SETS** To set up the machine for a particular thread pitch or feed rate refer to the gear ratio chart for the sizes of Z1, Z2 & Z3 and then identify the actual gears. (The number of teeth on each gear is moulded into the face of the gear.) Gears Z1 and Z2 are pairs of gears which are a push fit onto a splined sleeve. Ensure that the correct pairs are on the sleeve together according to the chart.
- 6.23.1. Remove the existing gear set. Use a large screwdriver to remove Z1 and then Z2. Use a 4mm hex key to remove Z3. The mountings for Z1 and Z2 are slotted, (fig.6) to allow the centres of the gears to move to accommodate the differing sizes.
- 6.23.2. To assemble the new gear set attach Z3 first and tighten the fixing. As gears Z1 & Z2 overlap attach the 'hidden' gear first. The attachment slots have a sliding nut positioned at the rear of the plate. Slide the nut into the approximate position required. Screw the gear into place but leave it loose enough to slide. Attach the final gear to the sliding nut in the other slot and allow the gears to settle into position. When you are satisfied that the gears are fully meshed, tighten the fixings for Z1 and Z2. Close and secure the gear cover and test run the machine to ensure that the drive train is fully functional.

## 7. MAINTENANCE

- **WARNING!** Ensure the machine is unplugged from the mains power supply before attempting any maintenance, for maximum performance it is essential that the lathe is properly maintained.
- 7.1. Lubricate the machine before every use.
- 7.2. After each use remove all swarf from the machine and thoroughly clean all surfaces. If coolant has been used ensure it is all cleaned from the machine and any collection tray is completely drained. Lightly oil all machined surfaces.
- 7.3. Clean and coat the leadscrews with oil weekly.
- 7.4. **CROSS SLIDE AND SADDLE ADJUSTMENT** Adjust the accuracy of the cross feed and saddle on a monthly basis. Any wear or slack can be taken up by adjusting the position of the appropriate gib strip. To do this use a hex key and spanner as shown in (fig.8). Adjust the cross feed using the adjusters marked 'A' in (fig.9). The movement should be even and smooth along its whole travel.
- 7.4.1. If the movement is too slack or too tight readjust. Tighten the lock nuts.
- 7.4.2. Adjust the saddle in the same way using the three adjusters marked 'B' in (fig.9).
- 7.5. **CROSS SLIDE FEED HANDLE** If any stiffness occurs in the operation of the handle it is usually as a result of swarf lodging between the mating surfaces. Cleaning will require disassembling to rectify the problem.



### 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.



### 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 is required for any claim.

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