INSTRUCTION MANUAL

DML36SH-CAM
Swivel Head Wood Lathe (240V)
230 x 914mm

R800

Contents

Dear Customer,

Thank you for investing in a Record Power woodturning lathe, which has been designed to give you years of satisfying service. A complete list of accessories to enhance your enjoyment of woodturning is included at the back of this manual. Please do not forget to register your product with the authorised distributor in your country, details of whom can be found on the outside back cover of this manual.

Purpose of This Manual

This manual serves to give details of Specification, Health & Safety, Installation & Assembly, it does not serve to teach you the art and skill of Woodturning. This is best done by either attending a course run by a skilled woodturner, obtaining one of the many publications on the subject and by viewing our website (www.recordpower.co.uk) where you can find various woodturning tuition articles and projects. Please ensure you have sufficient basic skills before using this machine. Basic lathe use and woodturning operations can be found in this manual in **section 8**.

Record Power and the Environment

Considerations of environmental issues are an integral part of the design, production and other associated aspects of this product, and all reasonable environmentally friendly options have been adopted throughout.

Users are advised to consider environmental issues associated with the use of this product, particularly when considering workpiece material. Confirmation of sourcing from well-managed forests is advisable whenever practically possible.

Waste Electrical and Electronic Equipment (WEEE) Regulations

The WEEE regulations aim to encourage reuse, recycling and recovery of electrical and electronic waste. Further information regarding the WEEE guidelines are available at www.bis.gov.uk/weee.

1. Explanation of Symbols

The symbols and their meanings shown below may be used throughout this manual.
Please ensure that you take the appropriate action wherever the warnings are used.

Mandatory Instructions


Read and fully understand the instruction manual before attempting to use the machine.


Indicates an instruction that requires particular attention


Wear protective eyewear


Use respiratory protective equipment


Use hearing protection


Use suitable protective footwear


Use protective work gloves

Warnings


Indicates a risk of severe personal injury or damage to the machine


Indicates a risk of severe personal injury from electrical shock


Risk of personal injury from lifting of heavy items


Indicates a risk of severe personal injury from airborne objects


Risk of fire

2. General Health & Safety Guidance

Ensure that you carefully read and fully understand the instructions in this manual before assembly, installation and use of this product. Keep these instructions in a safe place for future reference.

WARNING: for your own safety, do not attempt to operate this machine until it is completely assembled and installed according to these instructions.

WARNING: When using any machine, basic safety precautions should always be followed to reduce the risk of fire, electric shock and personal injury.

Safe Operation

1. Use Personal Protective Equipment (PPE)

- The operation of any machine can result in foreign objects being thrown into your eyes, which can result in severe eye damage. Protective eyewear or other suitable eye protection or face shield should be used at all times. Everyday spectacles only have impact resistant lenses. They are not protective eyewear and do not give additional lateral protection.
- Use respiratory protective equipment (dust mask etc.) if the machining operation creates dust. Exposure to high levels of dust created by machining hardwoods, softwoods and man made composite boards can result in serious health problems. Some imported hardwoods give off highly irritating dust, which can cause a burning sensation. The use of respiratory protective equipment should not be seen as an alternative to controlling the risk of exposure at source by using adequate dust extraction equipment.
- The use of ear plugs or ear defenders is recommended when the machine is in use, particularly if the noise level exceeds 85 dB.
- Wear suitable protective gloves when handling cutting tools or blades. Gloves should NOT be worn when using the machine as they can be caught in moving parts of the machine.
- Non-slip safety footwear is recommended when using the machine and handling large work pieces.

2. Dress appropriately

- Do not wear loose clothing, neckties or jewellery; they can be caught in moving parts of the machine.
- Roll up long sleeves above the elbow.
- Wear protective hair covering to contain long hair.

3. Safety warnings

- Find and read any warning labels on the machine
- It is important that any labels bearing health and safety warnings are not removed, defaced or covered. Replacement labels can be obtained by contacting our Customer Service Department.

4. Familiarise yourself with the machine

- If you are not thoroughly familiar with the operation of this machine, obtain advice from your supervisor, instructor, or other qualified person or contact your retailer for information on training courses. Do not use this machine until adequate training has been undertaken.

5. Take care when moving or positioning the machine

- Some machines can be very heavy. Ensure the floor of the area in which the machine is to be used is capable of supporting the machine.
- The machine and its various components can be heavy. Always adopt a safe lifting technique and seek assistance when lifting heavy components. In some cases it may be necessary to use mechanical handling equipment to position the machine within the work area.
- Some machines have optional wheel kits available to allow them to be manoeuvred around the workshop as required. Care should be taken to install these according to the instructions provided.
- Due to the nature of the design of some machines the centre of gravity will be high making them unstable when moved. Extreme care should be taken when moving any machine.

6. The machine should be level and stable at all times

- When using a leg stand or cabinet base that is designed to be fitted to the machine, always ensure that it is securely fastened to the machine using the fixings provided.
- If the machine is suitable to be used on a workbench, ensure that the workbench is well constructed and capable of withstanding the weight of the machine. The machine should always be securely fastened to the workbench with appropriate fixings.
- Where possible, floor standing machines should always be secured to the floor with fixings appropriate to the structure of the floor.
- The floor surface should be sound and level. All of the feet of the machine should make contact with the floor surface. If they do not, either re-locate the machine to a more suitable position or use packing shims between the feet and the floor surface to ensure the machine is stable.

7. Remove adjusting keys and wrenches

- Ensure that all adjusting wrenches and keys are removed before switching the machine 'ON'. There is a risk of severe personal injury or damage to the machine from airborne objects.

8. Before switching the machine 'ON'

- Clear the machine table of all objects (tools, scrap pieces etc.)
- Make sure there is no debris between the work piece and the table / work support.
- Ensure that the work piece is not pressed against, or touching the saw blade or cutting tool.
- Check all clamps, work holding devices and fences to ensure that they are secure and cannot move during machining operations.
- Plan the way that you will hold and feed the work piece for the entire machining operation.

9. Whilst machining

- Before starting work, watch the machine while it runs. If it makes an unfamiliar noise or vibrates excessively, switch the machine 'OFF' immediately and disconnect it from the power supply. Do not restart until finding and correcting the source of the problem.

10. Keep the work area clear

- Working clearances can be thought of as the distances between machines and obstacles that allow safe operation of every machine without limitation. Consider existing and anticipated machine needs, size of material to be processed through each machine and space for auxiliary stands and/or work tables. Also consider the relative position of each machine to one another for efficient material handling. Be sure to allow yourself sufficient room to safely operate your machines in any foreseeable operation.
- Cluttered work areas and benches create the risk of accidents. Keep benches clear and tidy away tools that are not in use.
- Ensure that the floor area is kept clean and clear of any dust and debris that may create trip or slip hazards.

11. Consider the work area environment

- Do not expose the machine to rain or damp conditions.
- Keep the work area well lit and ensure that there is artificial lighting available when there is insufficient natural light to effectively light the work area. Lighting should be bright enough to eliminate shadow and prevent eye strain.
- Do not use the machine in explosive environments eg. in the presence of flammable liquids, gases or dust.
- The presence of high levels of dust created by machining wood can present a risk of fire or explosion. Always use dust extraction equipment to minimise the risk.

12. Keep other persons away (and pets)

- The machine is designed to be used by one person only.
- Do not let persons, especially children, touch the machine or extension cable (if used) and keep visitors away from the work area.
- Never leave the machine running unattended. Turn the power supply off and do not leave the machine unattended until it comes to a complete stop.
- If the work area is to be left unattended, all machinery should be switched 'OFF' and isolated from the mains power supply.

2. General Health & Safety Guidance - cont.

13. Store machines safely when not in use
- When not in use, machines should be stored in a dry place, out of reach of children. Do not allow persons unfamiliar with these instructions or with the machine to operate it.

14. Do not overreach
- Choose a working position that allows your body to remain balanced and feed the work piece in to the machine without overreaching.
- Keep proper footing and balance at all times.

15. Electrical supply
- Electrical circuits should be dedicated to each machine or large enough to handle combined motor amp loads. Power outlets should be located near each machine so that power or extension cables are not obstructing high-traffic areas. Observe local electrical guidelines for proper installation of new lighting, power outlets, or circuits.
- The machine must be connected to an earthed power supply.
- The power supply must be equipped with a circuit breaker that provides short circuit, overload and earth leakage protection.
- The voltage of the machine must correspond to the voltage of the mains power supply.
- The mains plug fitted to the machine should always match the power outlet. Do not modify the plug in any way. If a replacement plug is required it should be fitted by a competent person and of the correct type and rating for the machine.
- If you are unsure about any electrical connections always consult a qualified electrician.

16. Avoid unintentional starting of the machine
- Most machines are fitted with a no-volt release (NVR) switch to prevent unintentional starting. If in doubt always ensure the machine switch is in the 'OFF' position before connecting it to the power supply. This means the machine will not automatically start up after a power cut or switching on of the power supply, unless you first reset the start switch.

17. Outdoor use
- Your machine should not be used outdoors.

18. Extension cables
- Whenever possible, the use of extension cables is not recommended. If the use of an extension cable is unavoidable, then it should have a minimum core cross section of 2.5mm^2 and limited to a maximum length of 3 metres.
- Extension cables should be routed away from the direct working area to prevent a trip hazard.

19. Guard against electric shock
- Avoid body contact with earthed or grounded surfaces such as pipes and radiators. There is an increased risk of electric shock if your body is earthed or grounded.

20. Always work within the machine's intended capacities
- Operator safety and machine performance are seriously adversely affected if attempts to make the machine perform beyond its limits are made.

21. Do not abuse the power cable
- Never pull the power cable to disconnect it from the power socket. Always use the plug.
- Keep the power cable away from heat, oil and sharp edges.
- Do not use the power cable for carrying or moving the machine.

22. Secure the work piece
- Ensure that the work piece is securely held before starting to machine it.
- When working within 300mm of the machining area, always use a push stick to feed the work piece in to the blade or cutting tool. The push stick should have a minimum length of 400mm. If the push stick becomes damaged, replace it immediately.
- Use extra supports (roller support stands etc.) for any work pieces large enough to tip when not held down to the table top.
- Do not use another person as a substitute for a table extension, or as additional support for a work piece that is longer or wider than the basic table, or to help feed, support, or pull the work piece.
- Do not attempt to machine more than one work piece at a time.
- When feeding the work piece towards the blade or cutting tool never position your hands in direct line of the cutting path. Avoid awkward operations and hand positions where a sudden slip could cause your hand or fingers to move into the machining area.

23. Stay alert
- Safety is a combination of operator common sense and alertness at all times when the machine is being used.
- Use all machines with extreme care and do not use the machine when you are tired or under the influence of drugs, alcohol or medication.

24. Use the correct tool for the job
- Do not use the machine for any purpose other than which it was designed.
- When selecting replacement cutting tools and blades, always ensure that they are designed to cut the material that you intend to use them for. If in any doubt seek further advice from the manufacturer.

25. Connect dust extraction equipment
- Always use dust extraction equipment. The dust extractor should be of suitable size and capacity for the machine that it is connected to and have a filtration level appropriate to the type of waste being collected. Refer to the relevant section of the manual for details of the specific dust extraction requirements for this machine.
- The dust extractor should be switched 'ON' before starting the machine that it is connected to. The dust extractor should be left running for 30 seconds after the last machining operation is complete in order to clear any residual waste from the machine.

26. Ensure that the machine is correctly guarded
- Never use the machine if any of the standard safety guards and equipment are removed or damaged.
- Some machines incorporate safety interlocks to prevent the machine from being used without the guards in place. Never attempt to bypass or modify the interlocks to allow the machine to be used without the guards in place.

27. Maintain your machine with care
- This manual gives clear instructions on installation, set up and operation of the machine and also details any routine and preventative maintenance that should be performed periodically by the user.
- Remember always to switch off and unplug the machine from the power supply before carrying out any setting up or maintenance operations.
- Follow any instructions for the maintenance of accessories and consumables.
- Do not use compressed air to clean the machine. Always use a brush to dislodge dust in places that are awkward to reach and a dust extractor to collect the waste.
- Inspect electric cables periodically and, if damaged, have them replaced by an authorised service facility or qualified electrician.
- Inspect extension cables (if used) periodically and replace if damaged.

28. Keep cutting tools sharp and clean
- Correctly maintained cutting tools are easier to control and less likely to bind.
- Cutting tools and blades can become hot during use. Take extreme care when handling them and always allow them to cool before changing, adjusting or sharpening them.

2. General Health & Safety Guidance - cont.

29. Disconnect the machine from the power supply

- When not in use, before servicing, changing blades etc. always disconnect the machine from the power supply.

30. Check for damaged parts

- Before each use of the machine, 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 and any other conditions that may affect the operation of the machine.
- A guard or other part that is damaged should be properly repaired or replaced by a qualified person unless otherwise indicated in this instruction manual.
- Do not use the machine if the switch does not turn the machine 'ON' and 'OFF'.
- Have defective switches replaced by a qualified person.

31. Warning!

- The use of any accessory or attachment, other than those recommended in this instruction manual, or recommended by our Company may present a risk of personal injury or damage to the machine and invalidation of the warranty.

32. Have your machine repaired by a qualified person

- This machine complies with the relevant safety rules and standards appropriate to its type when used in accordance with these instructions and with all of the standard safety guards and equipment in place. Only qualified persons using original spare parts should carry out repairs. Failure to do this may result in considerable danger to the user and invalidation of warranty.

33. Caution! Motor may become hot during use

- It is normal for motors on some machines to become hot to the touch during use. Avoid touching the motor directly when in use.

3. Additional Health & Safety for Woodturning Lathes

Safe Operation

Familiarise yourself with the machine

- Machining operations using wood turning lathes have a history of serious accidents. Most serious accidents resulted from the work piece being thrown from the lathe whilst turning. Other accidents can be caused by loose clothing being drawn in to the rotating work piece or hands becoming trapped between the rotating work piece and fixed parts of the lathe.

2. Before switching the machine 'ON'

- Before attaching a work piece to a faceplate, always prepare it to be as round as possible. This will minimise vibration whilst turning. For further instructions please see the section of this manual entitled **Intended Use of the Lathe & Basic Woodturning Instructions**.
- Adjust the tool rest to the correct height and distance from the work piece and check that all fixings are secure.
- Check that the size of the work piece is within the safe working capacities of the lathe as detailed in the manual.
- Select the correct speed according to the size and type of work piece. The slowest speed is the safest speed to start any new work piece.
- Always rotate the work piece by hand before starting the lathe to ensure it does not come into contact with the tool rest. If the work piece strikes the tool rest during operation, it could be split and thrown from the lathe.
- When using a faceplate always ensure the work piece is well secured with screws of a suitable diameter and length.
- Remove any loose knots and bark from the work piece before mounting it to the lathe.
- If mounting a work piece between centres, always ensure that the tailstock is correctly adjusted and fully secure. Check that the locking handle for the tailstock barrel is fully tightened.

3. Whilst using the lathe

- Do not allow the turning tool to dig in to the work piece, which could result in the work piece splitting or being thrown from the lathe. Always position the tool rest at the correct height. For further instructions please see the section of this manual entitled **Intended Use of the Lathe & Basic Woodturning Instructions**.
- Before starting to machine a work piece that is off centre or not perfectly round, always set the machine to the slowest speed and gradually increase speed as the work piece becomes more balanced as material is removed. Running the lathe too fast could cause the work piece to be thrown from the lathe or the turning tool to be snatched from your hands.
- Always store turning tools in a safe place away from the work area of the lathe. Never reach over the rotating work piece to reach for turning tools or accessories.
- Never attempt to adjust the position of the tool rest whilst the machine is running. Always switch the machine 'OFF' and wait until the work piece has stopped rotating before attempting any adjustments.
- Do not mount a work piece that contains excessive splits or loose knots or bark.
- Keep firm hold and control of the turning tool at all times. Use extreme caution when knots and voids are exposed in the work piece.
- Finish all hand sanding before removing the work piece from the lathe. Do not exceed the speed used for the last cutting operation. For further instructions please see the section of this manual entitled **Intended Use of the Lathe & Basic Woodturning Instructions**.
- Do not attempt to remount a work piece that has been turned on a faceplate unless you are deliberately turning eccentric work. You cannot remount faceplate turned work and expect it to run true, as the timber will have expanded or contracted.
- Do not remount a work piece that has been turned between centres if the original centres have been altered or removed, unless you are deliberately turning eccentric work.
- If re-mounting any work piece, always set the machine to the slowest speed and gradually increase the speed as the work piece becomes more balanced as material is removed.
- Use extra caution when mounting a work piece that has been turned between centres to a faceplate, or when mounting a faceplate turning between centres, for subsequent machining operations. Always ensure that the lathe is set to the slowest speed before switching ON.
- Do not attempt to perform any machining operations when holding the work piece by hand.
- Do not mount a reamer, milling cutter, wire wheel, buffing wheel, drill bit or any other tool to the headstock spindle.
- Always ensure that the turning tool is in contact with the tool rest and fully supported before applying the tool to the work piece.
- When the tool rest base unit is not in use (e.g. when sanding), it should be moved away from the headstock, and the tool rest removed.

4. Maintenance

- Before attempting any maintenance and particularly when cleaning the machine, always remove any accessories and tooling from the machine.
- Always ensure that any accessories used on the lathe are kept clean and free from rust and deposits of resin.

3. Additional Health & Safety for Woodturning Lathes - cont.

- Keep all turning tools sharp and in good condition. Check that the handles are secure and not split or damaged.

5. This machine falls under the scope of the 'Health & Safety at Work etc. Act 1974', and the 'Provision & Use of Work Equipment Regulations 1998'. In addition the elimination or control of risks from wood dust is included in the above regulations and the 'Control of Substances Hazardous to Health (COSHH) Regulations 2002'. We recommend that you study and follow these regulations.

Further guidance is available from The Health & Safety Executive and their website www.hse.gov.uk and from the authorised distributor in your country (details on back cover of the manual).

4. Record Power Guarantee

"**Products**" means the Products sold by Record Power subject to these terms and conditions;

"**Record Power**" is Record Power Limited, whose company registration number is 4804158 and registered office address is Unit B, Ireland Industrial Estate, Adelphi Way, Staveley, Chesterfield, S43 3LS and sells through a network of Authorised Dealers;

"**Authorised Distributor**" is the nominated importer for your region who will generally sell through a network of Authorised Dealers. Details of Authorised Distributors for specific countries can be found in the Product manual or at www.recordpower.info;

"**Authorised Dealer**" is a retailer or business authorised to sell Record Power Products to end users.

1 Guarantee

1.1 Record Power guarantees that for a period of 5 years from the date of purchase the components of qualifying Products (see clauses 1.2.1 to 1.2.9) will be free from defects caused by faulty construction or manufacture.

1.2 During this period Record Power, its Authorised Distributor or Authorised Dealer will repair or replace free of charge any parts which are proved to be faulty in accordance with paragraphs 1.1 above provided that:

1.2.1 you follow the claims procedure set out in clause 2 below;

1.2.2 Record Power, our Authorised Distributor or Authorised Dealer are given a reasonable opportunity after receiving notice of the claim to examine the Product;

1.2.3 if asked to do so by Record Power, its Authorised Distributor or Authorised Dealer, you return the Product, at your own cost, to Record Power's premises or other approved premises such as those of the Authorised Distributor or supplying Authorised Dealer, for the examination to take place;

1.2.4 the fault in question is not caused by industrial use, accidental damage, fair wear and tear, wilful damage, neglect, incorrect electrical connection, abnormal working conditions, failure to follow our instructions, misuse, or alteration or repair of the Product without our approval;

1.2.5 the Product has been used in a domestic environment only;

1.2.6 the fault does not relate to consumable Products such as blades, bearings, drive belts or other wearing parts which can reasonably be expected to wear at different rates depending on usage (for full details contact Record Power or your local Authorised Distributor);

1.2.7 the Product has not been used for hire purposes, by you or by a previous owner;

1.2.8 the Product has been purchased by you as the guarantee is not transferable from a private sale.

1.2.9 where the Product has been purchased from a retailer, the 5 year guarantee is transferable and begins on the date of the first purchase of the Product and in the event of a claim under this guarantee proof of the original purchase date will be required to validate the warranty period.

2 Claims Procedure

2.1 In the first instance please contact the Authorised Dealer who supplied the Product to you. In our experience many initial problems with machines that are thought to be due to faulty parts are actually solved by correct setting up or adjustment of the machines. A good Authorised Dealer should be able to resolve the majority of these issues much more quickly than processing a claim under the guarantee.

2.2 Any damage to the Product resulting in a potential claim under the guarantee must be reported to the Authorised Dealer from which it was purchased within 48 hours of receipt.

2.3 If the Authorised Dealer who supplied the Product to you has been unable to satisfy your query, any claim made under this Guarantee should be made directly to Record Power or its Authorised Distributor (for details of the Authorised Distributor in your country please see your Product manual or check www.recordpower.info for details). The claim itself should be made in a letter setting out the date and place of purchase, and giving a brief explanation of the problem which has led to the claim. This letter should then be sent with proof of the purchase date (preferably a receipt) to Record Power or its Authorised Distributor. If you include a phone number or email address this will help to speed up your claim.

2.4 Please note that it is essential that the letter of claim reaches Record Power or its Authorised Distributor on the last day of this Guarantee at the latest. Late claims will not be considered.

3 Limitation of Liability

3.1 We only supply Products for domestic and private use. You agree not to use the Product for any commercial, business or re-sale purposes and we have no liability to you for any loss of profit, loss of business, business interruption or loss of business opportunity.

3.2 This Guarantee does not confer any rights other than those expressly set out above and does not cover any claims for consequential loss or damage. This Guarantee is offered as an extra benefit and does not affect your statutory rights as a consumer.

4 Notice

This Guarantee applies to all Products purchased from an Authorised Dealer of Record Power within the United Kingdom of Great Britain and Northern Ireland. Terms of Guarantee may vary in other countries – please check with the Authorised Distributor in your country (details of the Authorised Distributor for your country can be found in the manual or at www.recordpower.info).

5. Specifications

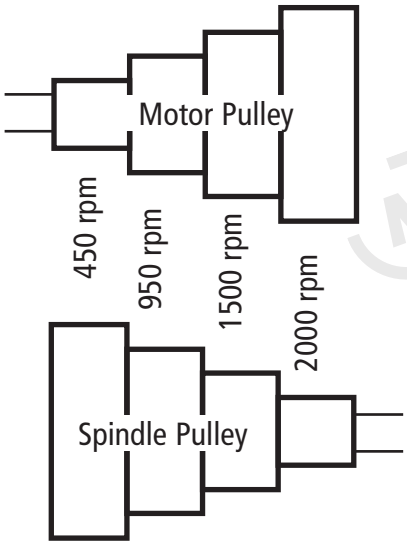
Maximum distance between centres:	36" (914 mm)
Maximum bowl diameter over bed:	9" (229mm)
Maximum bowl diameter with DML-BR fitted:	12" 305 mm)
Maximum spindle diameter:	6" 152 mm)
Pulley speeds:	450, 950, 1500 & 2000 rpm
Spindle nose:	3/4" x 16 tpi
Motor power:	1/ 3 hp (250 W)
Depth:	305 mm
Width:	1295 mm
Height:	298 mm
Weight:	40 kg
Noise emission:	Sound power level < 85 dB (A)
	Sound pressure level < 85 dB (A)

HEADSTOCK SPINDLE AND TAILSTOCK BARREL BORED TO SUIT NO.1 MORSE TAPER SHANK.

SPINDLE FLATTED TO SUIT 9/16" WHITWORTH WRENCH TO FACILITATE FITTING AND RELEASE OF SPINDLE NOSE ATTACHMENTS SUPPLIED. SPINDLE THREAD 3/4" X 16 TPI WHITWORTH THREAD.

Pulley Speed Ranges

By changing the belt on to each of the four pulleys, the speed can be varied from 450 to 2000 rpm.



KINEMATIC DESIGN

Throughout this manual you will find references to kinematics and the kinematic design of this product. The principle of kinematics is that three points of contact provide the most stability. The best example of this is to compare the stability of a three legged stool and four legged stool. The three legged stool utilises the kinematic concept and will never rock because it has three points of contact. The four legged stool however is far more unstable, only a tiny amount of distortion will cause the stool to become unstable and move. Record Power apply the kinematic design theory to the CL3-CAM and CL4-CAM lathes, wherever there is a critical piece of the structure being assembled kinematics are employed giving unsurpassed stability and rock solid performance. Please take care to follow all instructions when assembling, making sure that all critical kinematic areas are correctly positioned so that you enjoy optimum performance.

6. Assembly Instructions

Assembly – identifying contents

Inside the shipping container you will find the following:

1 Headstock & saddle
2 Tailstock
3 3 X square straps
4 Banjo
5 2 x end brackets
6 2 x wooden bench mounting washers (not required on DML24S Legstand, for use when mounting to a wooden bench)
7 Toolrest
8 2 x angle straps
9 2 x long bolts (threaded bar)
10 Long stem locking handle & M12 bolt (toolrest)
11 Tailstock centre
12 Two prong drive centre
13 Pry bar
14 2 x allen keys
15 Spanner
16 2 x bed bars (separate box)
17 2 x bushes
18 2 x washers
19 2 x nyloc nuts
20 Locking handle

6. Assembly Instructions - cont.

Before assembling and using your lathe, you must have a sturdy bench or stand for it. We recommend the Record Power DML24S Legstand. If you wish to build your own bench, remember that the lathe is heavy. The bench must not move during use.

WARNING

Inadequate strength of the bench could result in failure of the bench, which could cause the lathe to fall. Serious injury could occur. The lathe must not shift or move. If there is movement when not running, this movement will be exaggerated when in use. Serious injury could occur and work quality will suffer. To reduce movement, bolt the bench to the floor and the lathe to the bench.

CAUTION

To avoid back injury, get help lifting the lathe. Bend your knees, lift with your legs, not your back. The headstock and bed bars in particular are very heavy.

GENERAL NOTES

1. The first decision to be made when installing a lathe is the selection of the ideal location. For best results the location should have a solid floor of concrete or similar. Wooden floors will always have a certain amount of natural movement that will amplify any vibration present whilst turning. This is particularly noticeable if the machine is installed in a garden shed as the quality of materials used to construct the floor are generally not as good a quality as those used in the building industry. If the garden shed or workshop is the only option available, then the floor should be strengthened or reinforced to increase rigidity and dampen vibration.

2. The second, and possibly the most important decision is the selection of an appropriate bench or stand on which to mount the lathe. If using a wooden bench, whether it is an existing bench or purpose built, there are several points that should be kept in mind:

- The bench top should have a minimum thickness of 2" (50mm) and additional braces should be fitted length ways along the underside of the bench to improve rigidity.
- The legs should be of a suitable type and cross section to support the bench. This will of course depend on the overall size of the bench and type of lathe. The minimum cross section of wooden legs should be approximately 4" (100mm).
- The top of the legs should be located on the underside of the bench at approximately the same distance apart as the end brackets of the lathe. If the legs are mounted too close together the bench will become unstable. If the legs are too far apart the bench may have a tendency to sag under the weight of the lathe.
- The legs should NEVER be truly vertical, and should always slightly splayed by 5 degrees across the length and width of the bench. This will not only increase stability but also reduce vibration. Vertical legs will act like a trampoline, so that any force exerted downwards will simply rebound from the floor back up the legs and into the bench.
- The legs should be braced at approximately one third of their height from the floor, and should be braced both along the length and width of the bench.
- If possible the bench should be bolted to the floor, but it should NEVER be fixed to any of the surrounding walls and should ALWAYS be free standing.

Bed bars & Legstand Assembly

1. To assemble the bed bars and optional legstand take one of the end brackets and wedge, **Fig.6.1** (supplied with optional DML24S).

2. Unscrew the nut and washer from one end of a long bolt and feed the long bolt through the holes in the wedge, end bracket and angle strap. Ensure that the wedge is the correct way around in relation to the end bracket, **Fig.6.2**.

3. With the end bracket laid on the floor, feed two of the stand legs up into the end bracket as shown **Fig.6.3**. Replace the washer and nut, but do not tighten at this stage.

Ensure that the kinematic points on the angle strap oppose this on the end bracket **Fig.6.4A**.

4. Locate the bed bars in position under the angle straps and tighten in position **Fig.6.4B**.

Assemble the second set of legs with the remaining end bracket, angle strap and wedge as instructed above.

Please note: If the optional DML-BR bowl bracket is to be fitted use this in the assembly procedure at this point in place of the second end bracket.

5. Lay the second set of legs on the floor. Hold the already assembled end of the bed bars/legstand above the legs on the floor and lower them into position **Fig.6.5**.

The end of the bed bars/legstand which is aloft must now be supported whilst the end resting on the floor is tightened. It may be advisable to seek assistance for this **Fig.6.6A**.

NB: It may be useful to seek assistance when assembling the legstand as some of the procedures may be difficult to complete single handed.

Fig.6.1

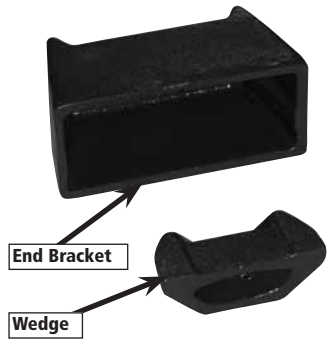
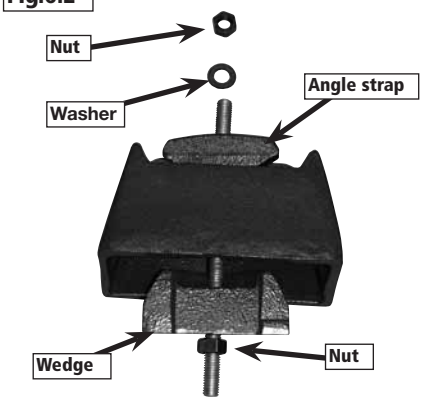


Fig.6.2



6. Assembly Instructions & - cont.

7. Return the assembled legstand to its upright position. It maybe useful at this point to make sure that the legs are all aligned correctly and adjust if necessary. The bottoms of the legs are angled slightly to provide a solid base. During assembly it is possible for the legs to become twisted. To align the legs slacken off the nut and twist the legs so the angle on the bottom of the leg lies flat on the floor, **Fig.6.6B**.

Correct alignment of the legs and bed bars is crucial to the success of the lathe assembly. Misalignment could cause the headstock and tailstock to be at an angle in relation to the bed bars.

Fig.6.3

Fig.6.4B

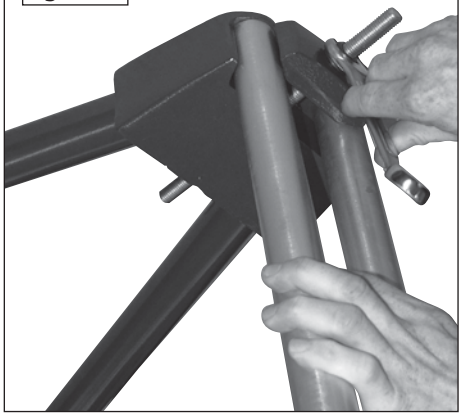


Fig.6.4A

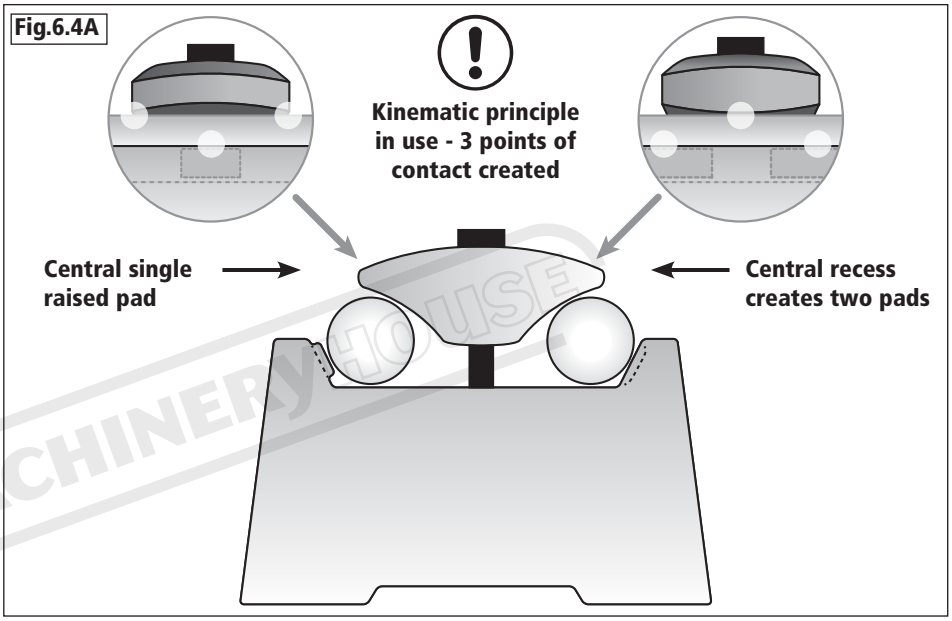
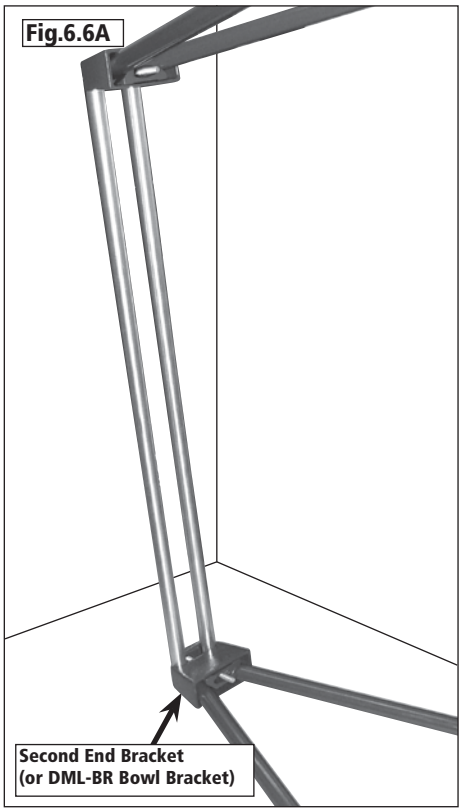


Fig.6.5

Fig.6.6A



6. Assembly Instructions - cont.

Bed Bars & Bench Mounting Assembly

1. Position the end brackets roughly in position at both ends of the bench.

Please note: If the optional DML-BR bowl bracket is to be fitted use this in the assembly procedure at this point in place of the headstock end bracket, Fig 6.7A.

2. Place the bed bars on the end brackets and space them accordingly.

3. When you are satisfied that the end brackets are in the correct position you mark out where the holes will be drilled to bolt the lathe to the bench **Fig.6.7A**.

4. Ensuring that the surrounding area is clear, drill the holes using either a 1/2" or 13mm drill bit.

5. The end brackets and bed bars can now be repositioned to align with the pre drilled holes.

6. Place the square straps on each end of the assembly ensuring that the kinematic locations oppose each other, **Fig.6.4A** i.e. the raised area on the angle strap opposes the recess on the end bracket.

7. Pass the 12mm threaded bar through the angle strap, end bracket and bench. Place the washer and nut on to the top of the bar and wind down approximately four threads.

8. Do this on both end brackets.

9. Now fit the cast iron bench washer to the exposed piece of threaded bar on the underside of the bench and secure with the second nut. Before fully tightening, ensure that the bars are aligned straight and supported by the end brackets. Also double check to make sure that the kinematic points are correctly positioned i.e. recess opposing raised area.

10. Tighten both of the nuts on each assembly against each other to secure the end brackets.

Fig.6.6B

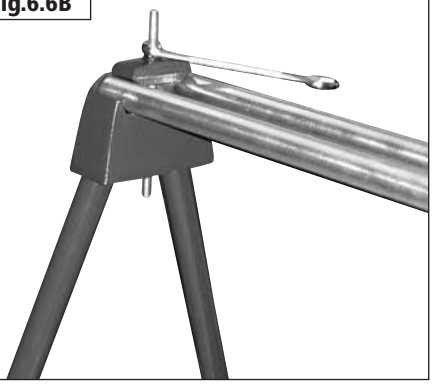


Fig.6.7A

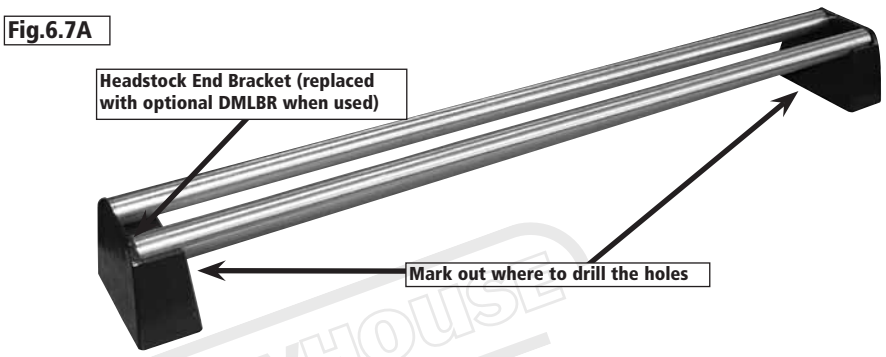
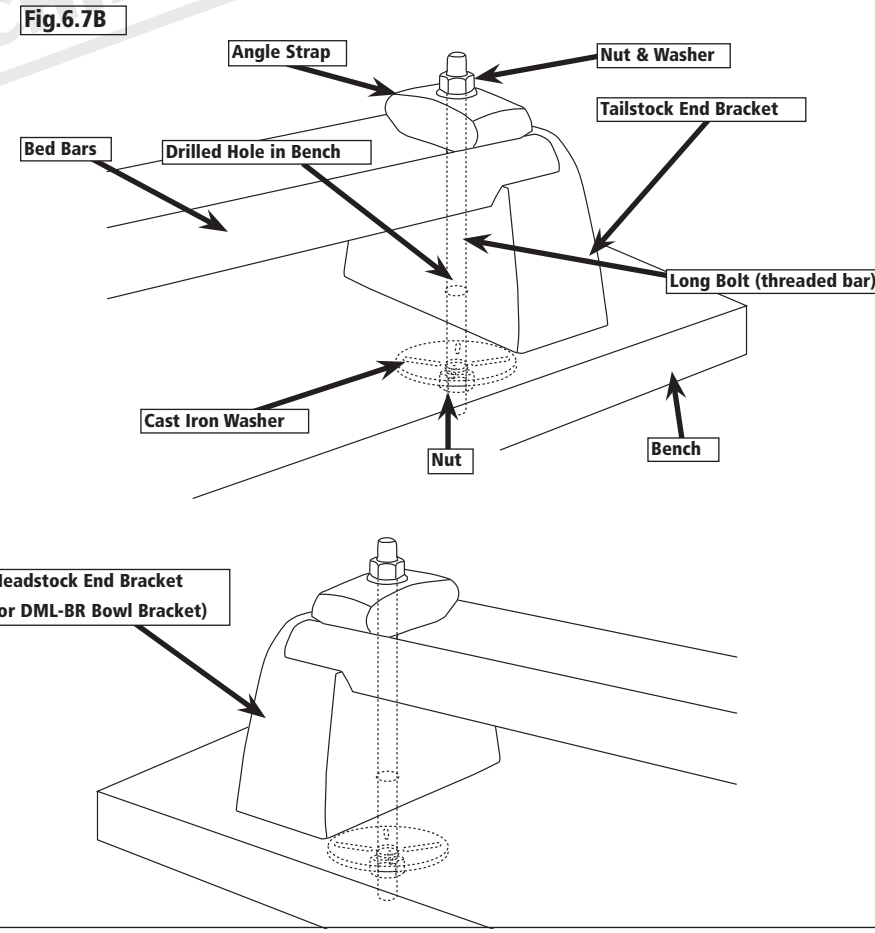


Fig.6.7B



6. Assembly Instructions - cont.

Attaching the Tailstock

1. Place the tailstock onto the bed bars at the right hand end of the assembly, again noting that the raised area for the kinematic design is at the front of the lathe, **Figs.6.8A** & **6.8B**.

2. Introduce the square strap underneath the bed bars, ensuring that the recess is to the front of the lathe opposing the raised area on the tailstock, **Figs.6.8A** & **6.8B**.

3. Place the bush onto the tailstock screw, **Fig.6.9**.

4. Feed the washer onto the tailstock screw under the bush and tighten the nyloc nut to secure the assembly, **Fig.6.10**.

5. Use a spanner to tighten the Nyloc nut on the underside of the tailstock assembly, **Fig.6.11**.

Please note: Sensitivity of the cam is adjusted with this nut. To reduce travel on the cam and increase clamping force, tighten the nut. To increase travel on the cam and reduce the clamping force, slacken the nut.

Fig.6.8

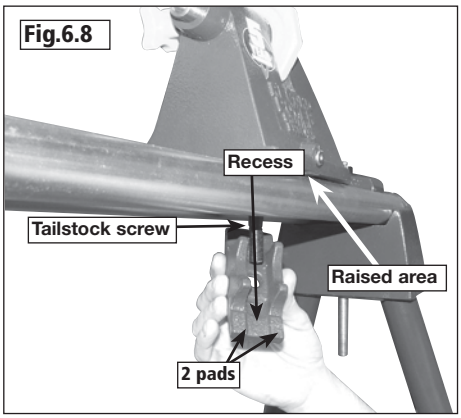


Fig.6.6B

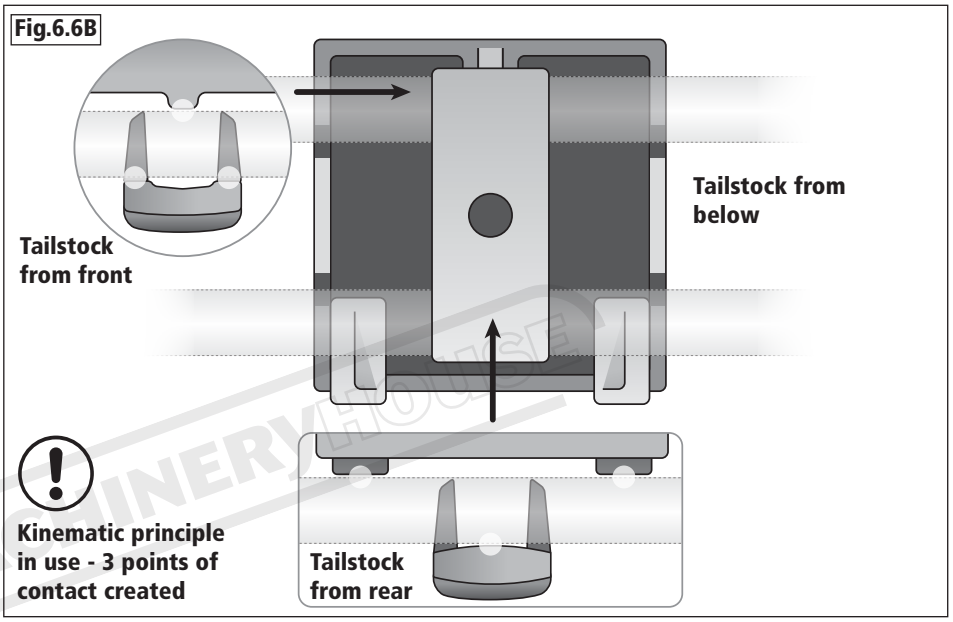


Fig.6.9

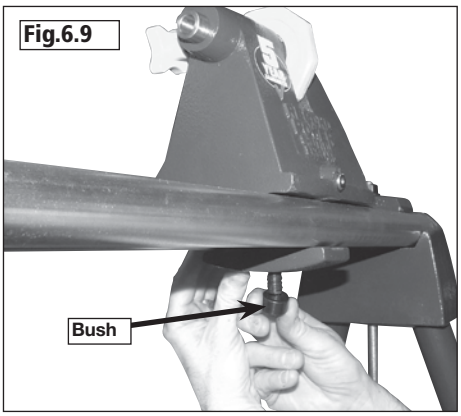


Fig.6.11

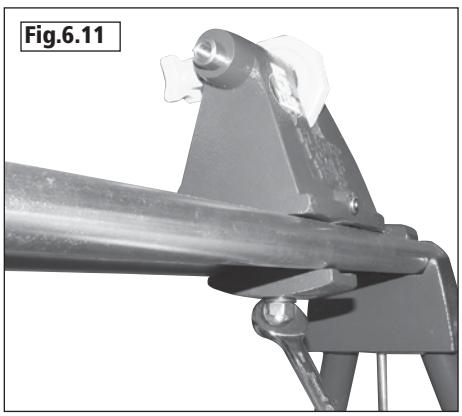
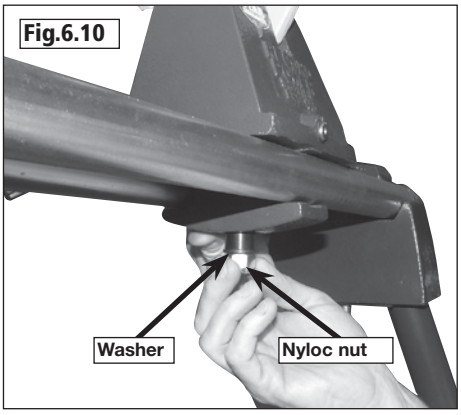


Fig.6.10



6. Assembly Instructions - cont.

Banjo & Toolrest Assembly

1. Place the flat side of the banjo onto the bed bars and insert the toolrest into the banjo **Fig.6.12**.

2. Introduce the square strap underneath the bed bars and feed the banjo screw through the hole in the square strap **Fig.6.12**.

Please note: Because the banjo (tool rest holder) is flat to allow travel on the bed bars, in this case there are no kinematic points of contact. This means the position of the square strap underneath is not critical. There are 3 identical square straps; one for the tail stock and one for the head stock (where kinematic points are used), one for the banjo (where kinematic points are not used).

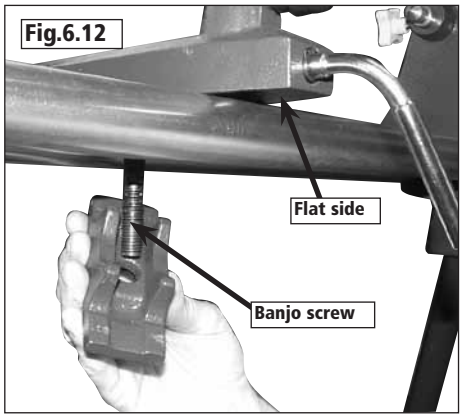
3. Place the bush onto the tailstock screw Fig.**6.13**.

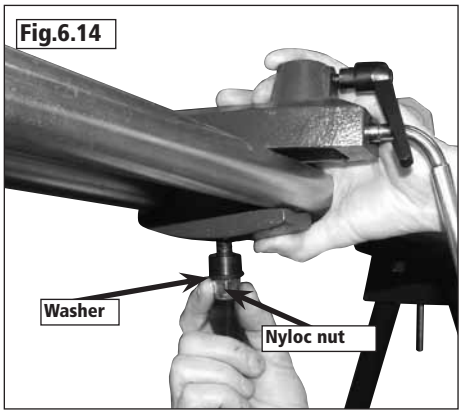
4. Feed the washer onto the tailstock screw under the bush and tighten the Nyloc nut to secure the assembly **Fig.6.14**.

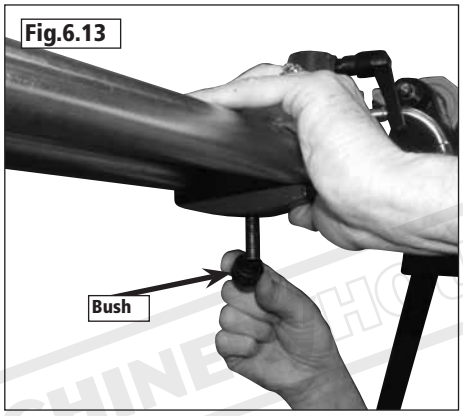
4. As before, use a spanner to tighten the nyloc nut on the underside of the toolrest assembly Fig.**6.15**.

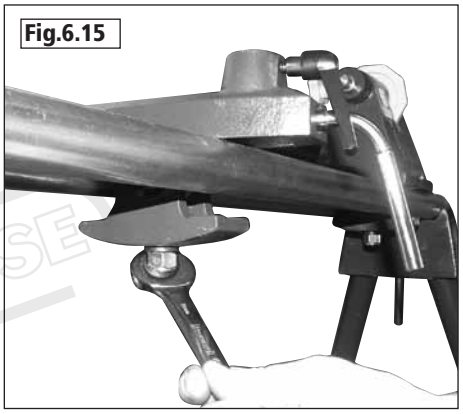
Please note: Sensitivity of the cam is adjusted with this nut. To reduce travel on the cam and increase clamping force, tighten the nut. To increase travel on the cam and reduce the clamping force, slacken the nut.

5. Insert the tool rest and locking handle into the banjo to complete assembly of the tool rest, **Fig 6.15A**.









6. Assembly Instructions - cont.

Headstock Assembly

1. Place the saddle on the bed bars, **Fig.6.16**.

1. Remove the cover plate from the headstock using the Allen key, **Fig.6.17**.

2. When fitting the remaining locking handle and square strap ensure that recess part of the square strap is on the same side as the white indication line on the saddle, **Fig.6.18**. Carefully lower the headstock onto the saddle, it is advisable to angle the headstock assembly so the motor rests on the bed bars, this will bear most of the weight, **Fig.6.19**.

3. Now feed the locking handle through the saddle and headstock, fasten the hex nut on to the locking handle which is showing inside the headstock, **Fig.6.19**. Ensure the nut seats against the roll pin on the inside of the headstock, **Fig.6.20**.

Caution: This component is very heavy and will not be stable on the bed bars until the nut and bolt are fastened. Assistance should be sought.

4. Tighten the locking bar into the nut securing the headstock assembly, **Fig.6.21**.

5. Rotate the spindle by hand and inspect the drive belt on the pulleys ensuring that it runs true, Fig.**6.22**. If it doesn't, remove the first grub screw (these are two grub screws in the same hole. A knurled grub screw on top and a dog grub screw underneath which rotate on a keyway on the spindle), loosen the dog grub screw and slide the stepped pulley along the motor shaft until the correct position is achieved and the belt is aligned straight.

6. Now tighten the dog grub into the groove on the motor shaft. Then take the second grub screw and tighten this in on top of the dog grub screw locking the position of the motor pulley, **Fig.6.23**.

7. Finally replace the headstock cover plate and secure this with the Allen bolt.

The assembly of the lathe is now complete, **Fig.6.24**.

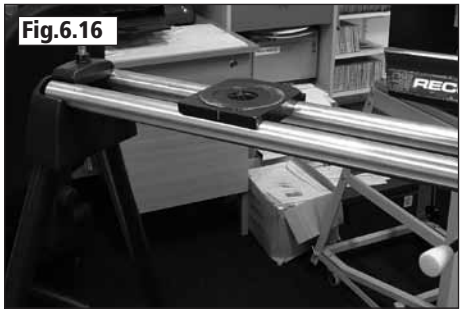


Fig.6.16


Fig.6.17

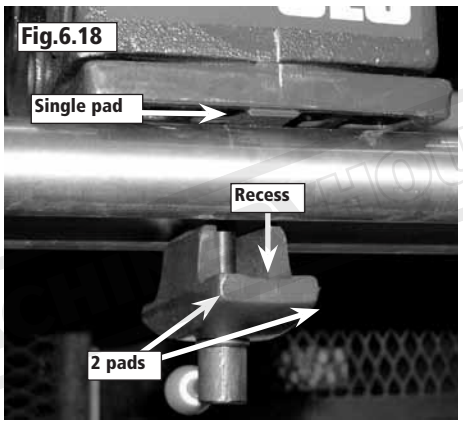


Fig.6.18

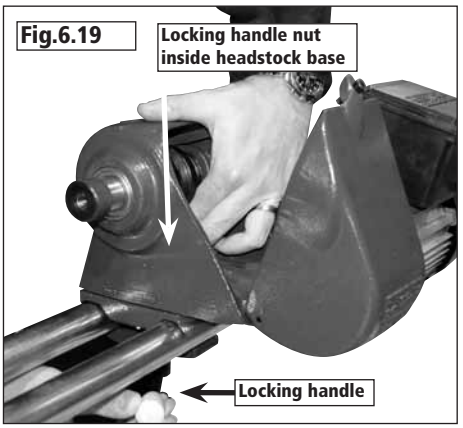


Fig.6.19

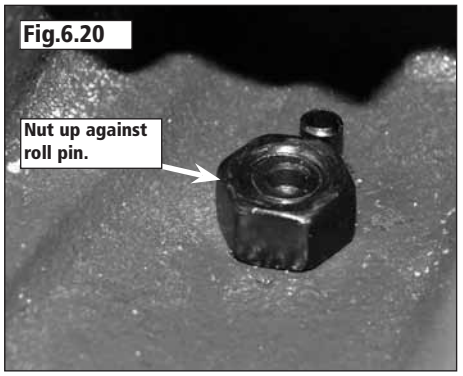


Fig.6.20

Fig.6.21

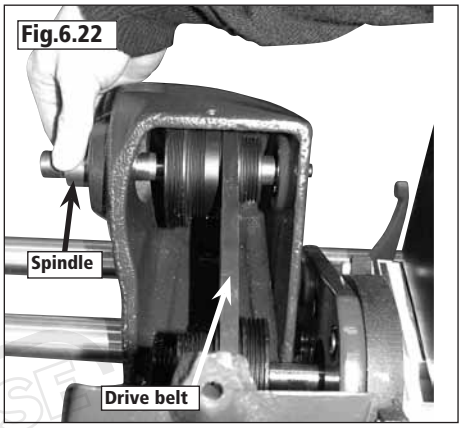


Fig.6.22


Fig.6.23

TIP

The pulleys lock onto the shafts using two grub screws.

- A knurled base grub screw which locates into the dog grub screw.

- Then the dog grub screw locates into the groove on the shaft.

6. Assembly Instructions - cont.

Fig.6.23

7. Intended Use of the Lathe & Basic Woodturning Instructions

Intended Use of the Lathe

This lathe is designed for turning wood between centres or on the headstock (using appropriate accessories), for sanding and applying finishes to wood. It is not to be used for any other purpose. Doing so will invalidate the warranty and may cause serious harm to the user.

Health & Safety

Please read the health and safety instructions contained in this manual and the specific health and safety instructions relating to woodturning. In addition, it is recommended to ensure your work area is adequately equipped with dust extraction and air filtration equipment.

Respiratory equipment should also be used to greatly reduce lung exposure to harmful fine dust. Always establish the properties of the timber being turned and take extra care when working with harmful and carcinogenic materials.

Eye protection must always be worn. Due to the nature of woodturning, shavings, dust and splinters can be thrown at fast speeds, making adequate eye protection essential.

Mounting Timber to a Faceplate or Chuck

When mounting the workpiece to a faceplate or chuck (not supplied), it is advisable to shape the timber into as cylindrical a profile as possible, see **fig 8.1**. Turning unbalanced timber increases lathe vibration, the risk of it being thrown from the lathe, increased risk of chisel dig in and makes correct positioning of the tool rest difficult due to variable distances.

Mounting Timber Between Centres

When turning between centres, it is essential to correctly and securely mount the timber so as to reduce the risk of it being thrown from the lathe. It is also essential to mount the timber as centrally as possible. This will reduce the amount of roughing out needed and also maximise the possible diameter of the final piece.

1. Using a square or rectangular profile blank, draw two lines, one from each opposing diagonal corner to the other, at each end of the blank. The point where the lines intersect indicates the centre of the blank. See **fig 8.2**. If using irregular shaped timber, a centre finder is an invaluable tool.

2. Take the four prong centre supplied with the lathe and place its point directly on to the centre point of one end of the blank. Using a soft mallet (of either plastic, rubber or wood) tap the four prong centre with reasonable force until it bites into the timber. See **fig 8.3**.

3. Carefully place the four prong centre into the headstock spindle of the lathe, **fig 8.4**, and ensure that it is correctly seated in the spindle by tapping it firmly into place with a mallet.

4. Slide the tailstock up the bed until the tailstock centre is almost touching the other end of the blank. Lock the tailstock in position and use the hand wheel to extend the tailstock centre until it grips the blank firmly at the centre point. See **fig 8.5**. Then use the tailstock locking handle the secure the position. The blank is now successfully mounted and ready to be turned.

Positioning the Tool Rest

It is extremely important to ensure the tool rest is correctly positioned before turning on the lathe. Place the tool rest close to the timber, allowing enough room to manoeuvre the chisel with ease. Spin the timber by hand to ensure it does not come into contact with the tool rest. If the lathe is started without checking this and the timber hits the tool rest, there is a risk the timber could be thrown from the lathe and cause injury. Never attempt to reposition the tool rest while the lathe is in motion.

Tool rest height is also important and varies depending on the chisel

Fig.8.1

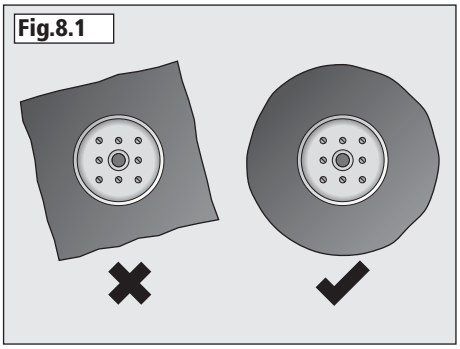


Fig.8.2

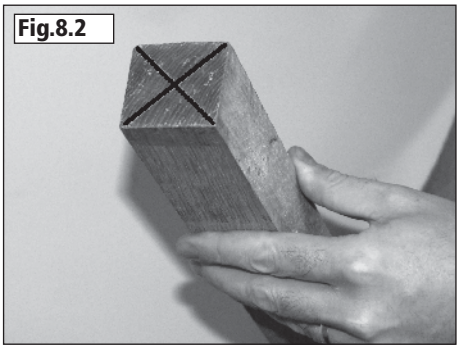


Fig.8.3

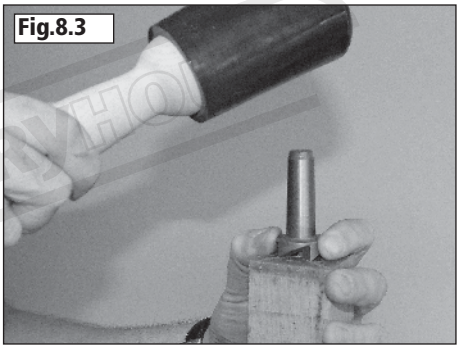


Fig.8.4

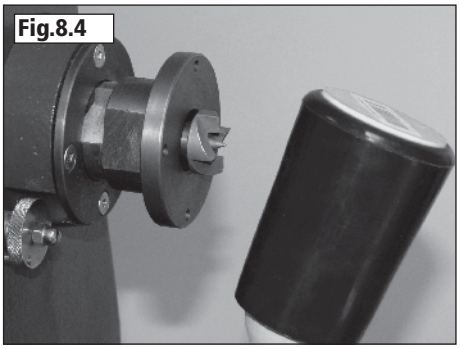
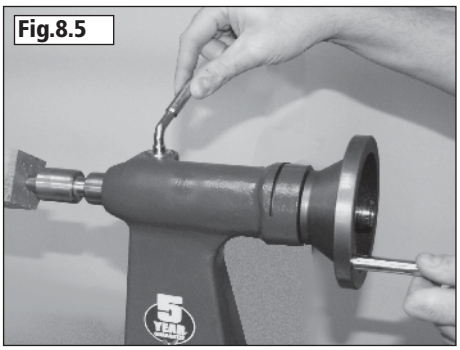


Fig.8.5



7. Intended Use of the Lathe & Basic Woodturning Instructions - cont.

being used. When using a roughing gouge, the cutting edge should come into contact with the centre of the workpiece, see **fig 8.6**. If using a skew chisel, the cutting edge should be applied approximately 3/8" (10 mm) above the centre height, see **fig 8.7**. A spindle gouge's cutting edge should come into contact with the workpiece approximately 3/8" (10 mm) below its centre, see **fig 8.8**.

Using the Roughing Gouge

The first step when turning between centres is invariably to 'rough out' the blank. This involves taking a square section blank and paring it down with a roughing gouge to a cylindrical profile, ready to shape into the final piece. Roughing gouges are usually sharpened to have the bevel at a 45º angle. Using the tool rest to support the blade, offer the blade to the workpiece at an angle, see **fig 8.9**. When offering the roughing gouge to the workpiece, the bevel should be rubbing it, without cutting. To make a cut, gently raise the handle of the tool in order to bring the cutting edge into contact with the timber. Using light passes, move the blade outwards towards the same edge of the timber which the blade is facing, **fig 8.9**. Never move the tool backwards, as this introduces the risk of splintering the wood and causing injury.

Using the Spindle Gouge

A spindle gouge is used to shape the final profile of a spindle and is capable of finer work than a roughing gouge. It is designed specifically for cutting coves or valleys. The blade should come into contact with the wood at just below the centre line. Resting it on the tool rest, apply the blade to the workpiece at an angle, see **fig 8.10**, rubbing the bevel onto it. Raise the handle to apply the cutting edge and make cuts. As with the roughing gouge, use controlled and light passes, trying to not remove too much wood at once. Never attempt to use a spindle gouge for working on bowls or hollow form work as the angle of the cutting bevel of the gouge is too shallow and will cause it dig in to the work piece or snatch the tools from your hands.

Using the Skew Chisel

Skew chisels are available in both flat and oval profiles. The curved profile is favoured by many as it gives better results more easily. Skew chisels are ideal for creating beads, refining the profiles and can be used to create a final smooth finish to the workpiece. The skew chisel should be applied to the workpiece horizontally with the blade resting on the tool rest, **fig 8.11**, again with the bevel rubbing the workpiece and raising the handle to take careful, controlled cuts.

Further Operations

The guidelines above give basic instructions on some of the most common woodturning procedures. There are a wide variety of specialised chisels and many complementary accessories available for Record Power lathes which enable a huge variety of work to be created. For further instructions on more advanced safe and effective woodturning, please seek professional training.

Fig.8.6

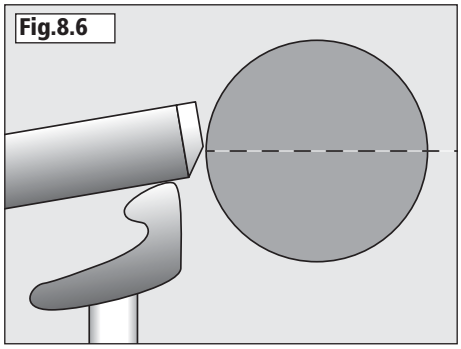


Fig.8.9

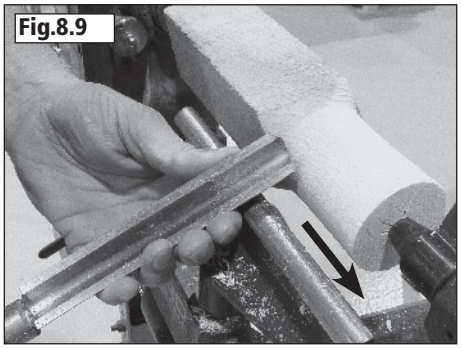


Fig.8.7

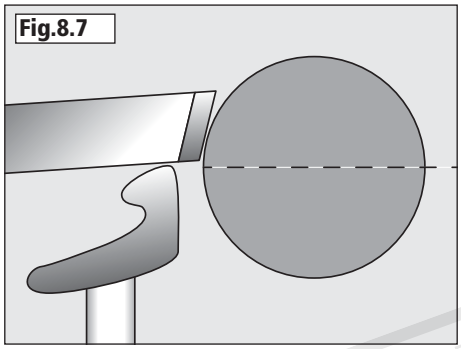


Fig.8.10

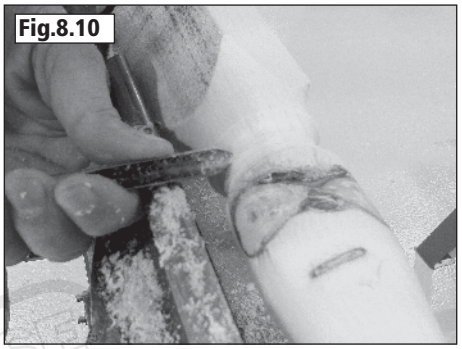


Fig.8.8

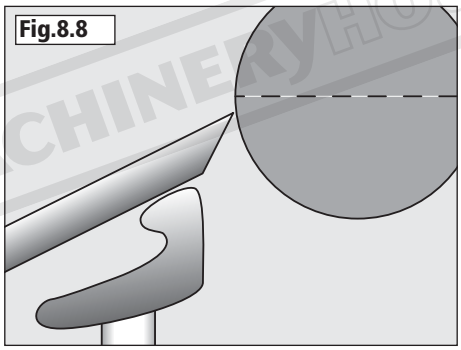
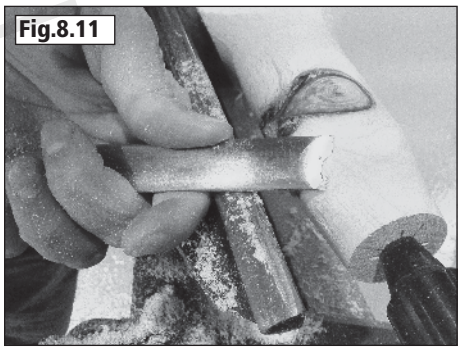


Fig.8.11



Speeds of the Lathe

To ensure the safest possible use of the lathe, it is important to understand which speeds are suited to which tasks. In general, the slower speeds should be used for the initial turning and roughing out of large pieces and the slowest speed should be used when large pieces are out of balance. This will reduce the possibility of the workpiece being thrown from the lathe.

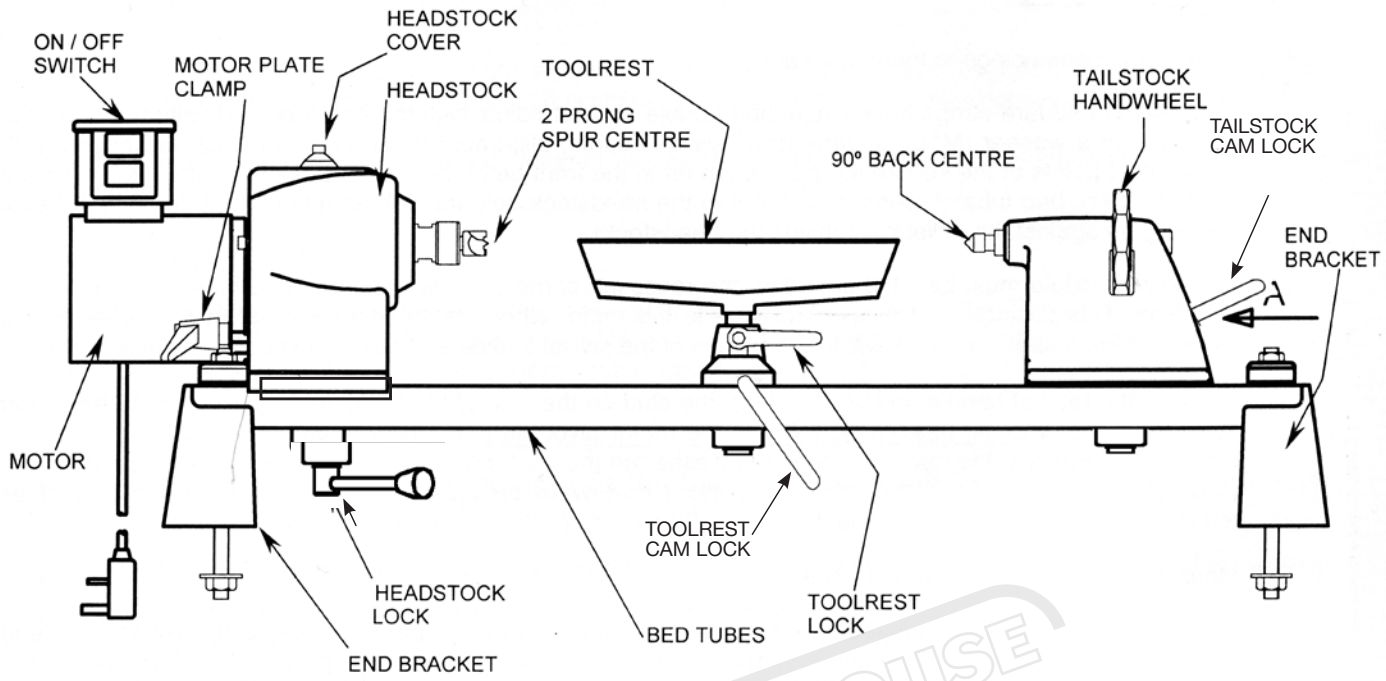
Medium speeds are ideally suited for general purpose work which doesn't place heavy loads on the spindle of the lathes, for example when creating the profiles of spindles and some smaller bowl turning.

The fastest speeds should be used only for small diameter work, where the size of workpiece is relatively small and therefore poses a lower risk of causing damage. Extra care should be taken when turning at the fastest speeds, using only a relatively light touch.

When sanding, care should be taken to not burn the operator's hands or the workpiece. It is recommended to not exceed the speed used for the last turning operation. If in doubt, use a slow speed.

8. Control Identification & Function

Fig.8.1



Control	Function	Operation / Comment
Tool rest	Supports turning tool.	Position as per lathe safety instructions.
2 prong centre	Holds and drives workpiece for spindle turning.	Provides driving force from motor. Firm contact is required.
Cup centre	Supports free end for spindle turning.	Provides support for end of spindle which is not driven. Use wax to reduce friction on the timber.
Headstock lock	Locks headstock to bed bars. Allows headstock to slide along bed bars and swivel.	Turn handle clockwise to lock. Firmly lock before mounting work.
Toolrest lock	Locks toolrest post into base.	Turn clockwise to lock.
Toolrest cam lock	Locks toolrest base to bed bars.	Turn clockwise to lock
Tailstock cam lock	Locks tailstock to bed bars.	Turn right to lock. Position tailstock along bed bars before locking.
Motor plate clamp	Locks motor when belt is tight.	Loosen to adjust belt for selected speeds. Tighten when belt is properly positioned.
Tailstock handwheel	Moves tailstock centre into workpiece.	Rotate clockwise to move back centre towards workpiece.
Tailstock centre lock	Locks tailstock centre.	Turn clockwise to lock after positioning back centre with handwheel.

9. Lathe Operation

PROCEDURE FOR RE-STARTING THE MACHINE AFTER A POWER FAILURE OR OVERLOAD

The DML36SH-CAM lathe is fitted with a no volt release (NVR) switch which will cut out in the event of a power failure preventing automatic re-starting when the power source is restored.

If the machine stalls due to overloading (following a dig in whilst turning), switch the machine OFF by pressing the red button marked 'O'. Rectify the source of the overload and rotate the work piece by hand to ensure that it can rotate freely before attempting to re-start the lathe.

CAUTION!

Before carrying out any adjustments or maintenance ensure that the machine is isolated and disconnected from the electricity supply.

SPEED SELECTION

Speed (RPM) controls the quality and safety of the work. Too slow and the finish will not be smooth. Too fast and the work can fly off the lathe causing damage and risking severe injury. Follow these steps to obtain the correct speed.

1. Remove the tool rest from the lathe.

2. Trim work before turning the lathe ON. Mount work on the lathe and spin it by hand. Imbalance is the result of one side being heavier than the other. Trim excess with a saw, sander, chisel or other means before turning the lathe on.

WARNING: Unbalanced workpieces can be thrown off the lathe at high speed. You can be seriously injured if hit by flying pieces. Always wear a face shield or suitable protection and ensure work is mounted securely. Start with a slow speed at first and build up to optimum speed only when the work becomes roughed out and balanced.

3. Set spindle speed to lowest speed and replace headstock cover if necessary, before turning the lathe ON.

4. Stand to the side of the workpiece when turning the lathe ON. So that if the work does fly off, you will not be in its path.

If, after letting the workpiece rotate at the slower speed, you are satisfied that it rotates safely, stop the machine, replace the toolrest and begin to rough out the work piece.

5. Adjust to a higher speed only after roughing out to achieve a balanced workpiece.

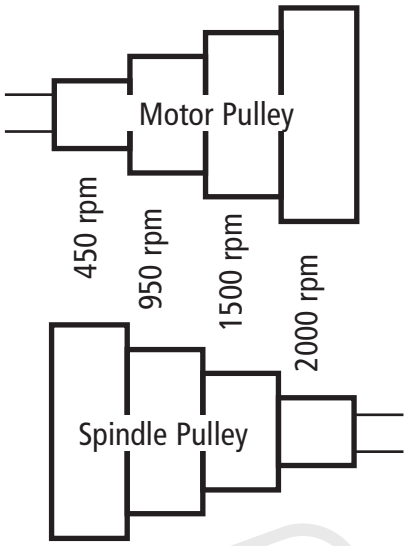
WARNING: Excessive speeds can cause the workpiece to break apart, throwing pieces in all directions. Always use the lowest speed that produces acceptable results. Any item that cannot be turned over the bed bars – MUST be turned using the lower speed range.

Most turning can be safely and effectively achieved between 400 and 2000 rpm. The additional speeds achievable with this unit are for specialist turning such as high speeds for miniature work, pens and lace bobbins and slow speeds for thread cutting for example. These speeds are only to be used by experienced turners who have had adequate training and observe all recommended safety and operating procedures.

Refer to speed chart shown below for pulley / speed details.

PULLEY SPEED RANGES

By changing the belt on to each of four pulleys, the speed can be varied from 450 to 2000 rpm.



WARNING: For your own safety, turn OFF and remove plug from power source before making any adjustments.

1. Ensure that the grub screws in the two pulleys are fully tightened. It is advisable that these should be checked periodically, (two grub screws per pulley). Remove outer grub screw before tightening fully the inner dog grub screw then re-place outer grub screw to lock in position (see **section 6**).

2. Adjustment of the tailstock along the lathe bed rails is obtained by releasing the **tail stock cam lock, Fig 8.1** and moving the tailstock to the desired position, then lock firmly. When working between centres, the tailstock centre is positioned in the workpiece by means of the tailstock hand wheel. The barrel is then locked in position by the **tailstock centre lock Fig 8.1**.

3. Adjustment of the toolrest base on the lathe bed rails is achieved by slackening the **tool rest cam lock Fig 8.1** and moving it to the desired position, then locking firmly.

4. Adjustment of the toolrest is obtained by releasing the **toolrest locking handle 8.1** and moving the toolrest to the desired position, then lock firmly using the **toolrest locking handle, Fig 8.1**.

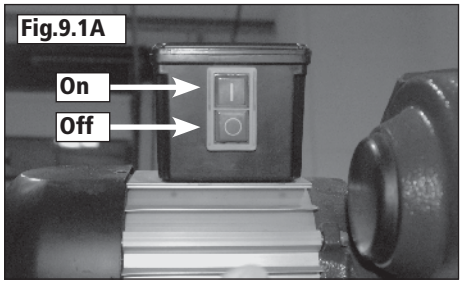
5. Always ensure that the adjustments mentioned above have been followed by firm clamping before starting the lathe and always turn the workpiece by hand to ensure it will not foul on any part of the lathe.

Please note: Sensitivity of the cam handles can be adjusted using the nyloc nut. See **section 6** - **Attaching the Tailstock** and **Banjo & Toolrest Assembly**.

9. Lathe Operation - cont.

CONTROLS AND FUNCTIONS OF THE DML36SH-CAM SWITCH BOX

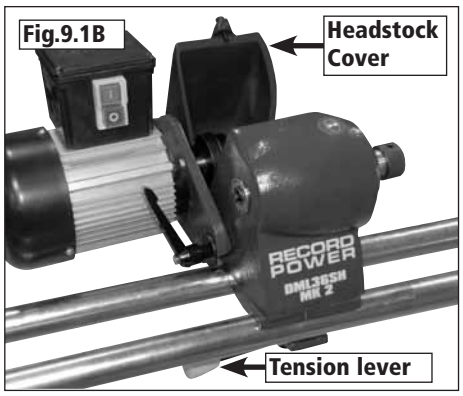
The DML36SH-CAM switch box is located on the motor unit, attached to the head stock. To turn the DML36SH-CAM on, press the green switch marked '|'. To stop the lathe, press the red switch marked 'O'. See **Fig 9.1A**.

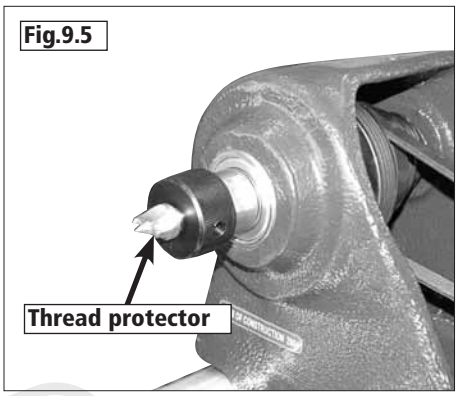


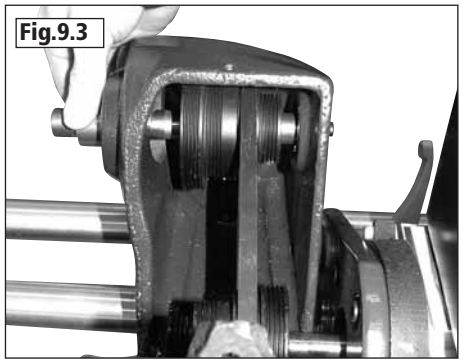
CHANGING THE BELT SPEED

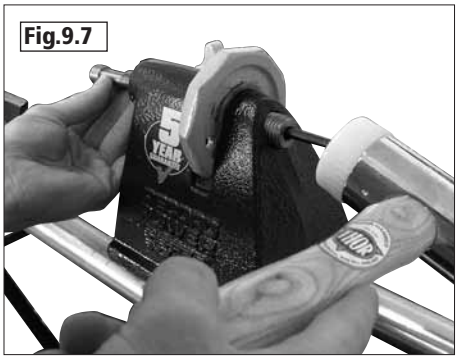
1. Turn the lathe OFF and disconnect from power source.
2. Remove headstock cover. **Fig.9.1B**.
3. Unlock motor plate using the tension lever. **Fig.9.1B**.
4. Lift motor to loosen belt.
5. While supporting the weight of the motor with one hand, move the belt to the desired pulley position **Fig.9.2**. Turn the spindle by hand to assure the belt is seated on both pulleys.
6. Lower motor to tighten the belt.
7. Rotate pulleys by hand to seat the belt on pulleys **Fig.9.3**.
8. Replace the headstock cover.
9. Reconnect the power plug to the power source. Turn the lathe on and check the spindle. If not turning at the desired speed, repeat steps above, starting with step 1.

WARNING: Do not operate the lathe without the headstock cover locked in place. Loose items, clothing or hands may enter the opening and become entangled in rotating parts. Serious injury could occur.





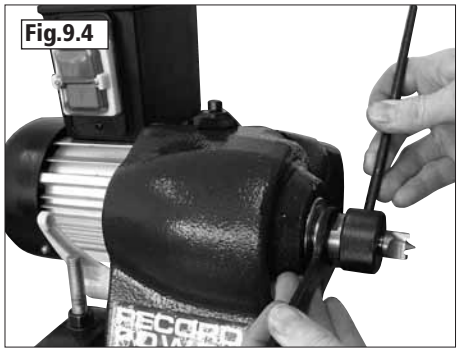




CHANGING THE HEADSTOCK FITMENT

To change the headstock fitment:

1. Hold the spindle inside on the headstock to stop it from turning, either by hand or with the spanner held on the wrench flat **Fig.9.4**.
2. Loosen the thread protector **Fig.9.5**. use the pry bar for extra leverage if required.
3. The drive centre can then be removed.



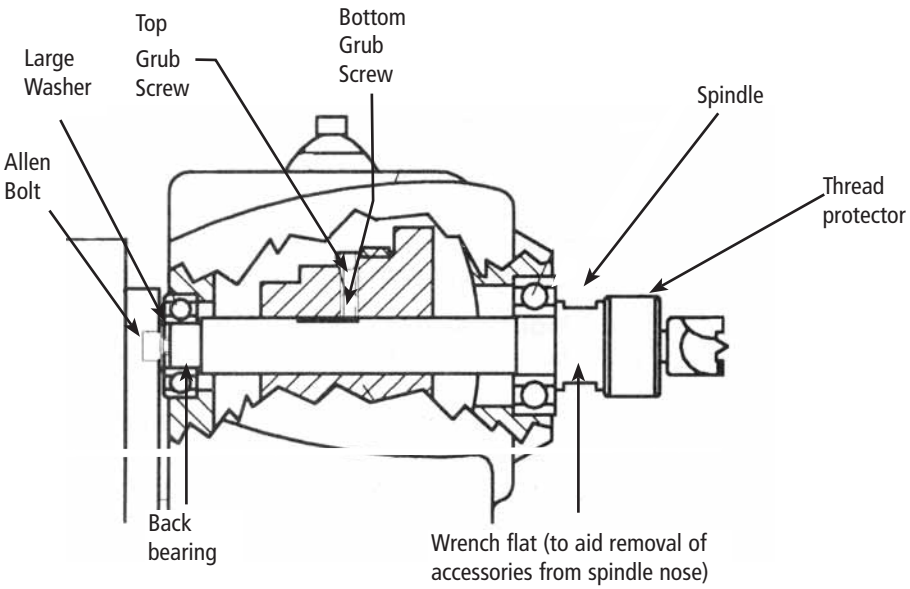
CHANGING THE TAILSTOCK FITMENT

1. Take the pry bar and insert it into the tailstock barrel **Fig.9.6**.
2. Tap the pry bar with a mallet and the centre will eject from the tailstock **Fig.9.7**.

10. Maintenance

Fig. 10.0

Cross Section of Spindle & Bearing Assembly



CAUTION!

Before carrying out any adjustments or maintenance ensure that the machine is isolated and disconnected from the electricity supply.

Please note: The procedure for changing a belt and changing a bearing are similar and both operations are covered in the following instructions. For replacing only one of these parts, follow these instructions simply omitting the part not being replaced.

PROCEDURE FOR REPLACING BELT & BEARINGS

Please note as well as the tools supplied with the product you will also need a wooden or nylon mallet to carry out this procedure.

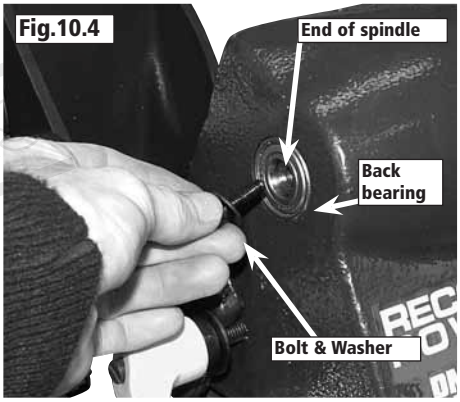
1. Remove headstock cover plate, **Fig. 10.1A**. and thread protector, **Fig. 10.1B**.

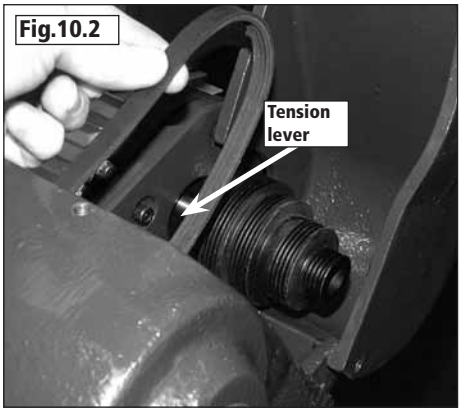
2. Release belt tension lever, **Fig. 10.2**.

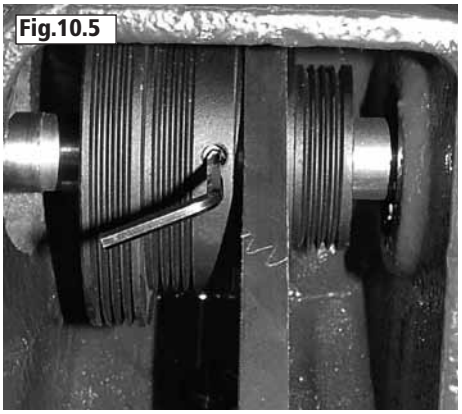
3. Supporting the motor with one hand Remove the drive belt from the motor pulley, **Fig. 10.3**. Lower the motor and tighten the tension lever.

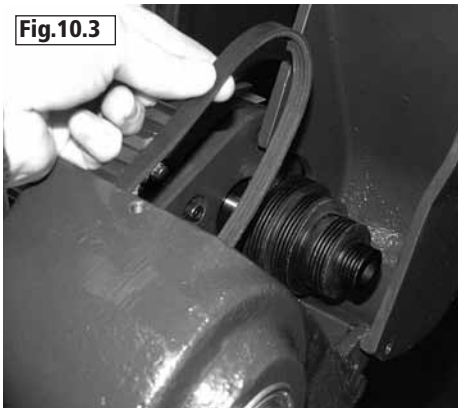
4. Unscrew the Allen bolt and remove this with the washer from the end of the spindle, **Fig. 10.4**.

5. Remove the top grub screw from the spindle pulley. Loosen the bottom dog grub screw a few turns so that the pulley will slide freely along the full length of the spindle inside the headstock, **Fig. 10.5**.









10. Maintenance - cont.

6. Taking a suitable drift such as a brass rod or piece of timber and a mallet drive the spindle from the back bearing through the headstock, **Fig.10.6A**. If you are not replacing the bearings take care not to damage the bearing itself, ensure you only strike the spindle. The white circle, **Fig.10.6B**. indicates the division between the spindle and bearing.

Note: Ensure you only strike the edge of spindle taking care not to damage the threaded part in the centre, **Fig.10.6C**.

7. The spindle should appear from the main headstock casting, **Fig.10.7**.

Note: If you are only changing the drive belt there should now be a sufficient gap to do so. When you have placed the new belt on the spindle pulley proceed to step 13.

8. Remove the spindle from the headstock and take out the pulley.

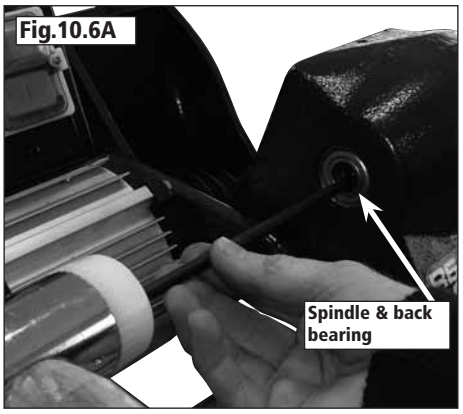
9. Using a suitable brass rod or piece of timber knock out the back bearing using a mallet, **Fig. 10.8**. This back bearing should now be removed.

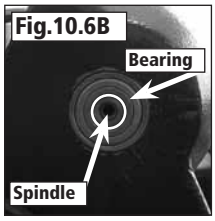
10. Now that the back bearing has been removed, pass a piece of timer or brass rod through from the other direction and knock out the front bearing **Fig. 10.9**.

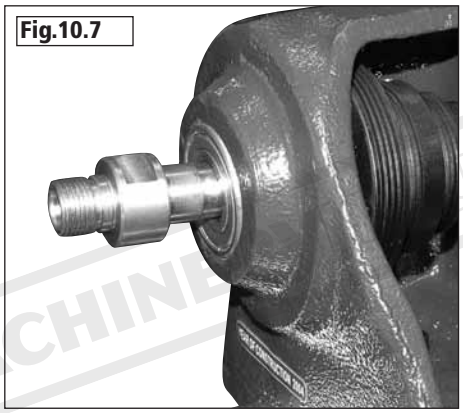
11. The new front and back bearings can now be fitted.

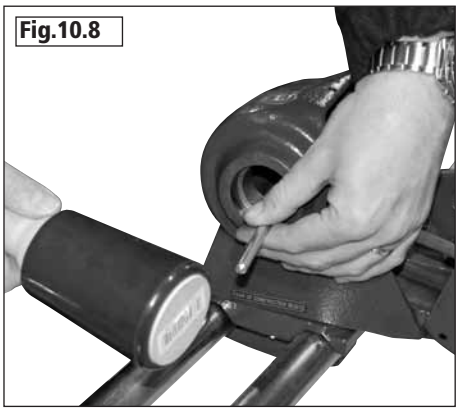
12. Offer the bearings into position and knock them back into place until they seat against the circlip **Fig.10.10A**. Repeat this process to fit the back bearing **Fig.10.10B**.

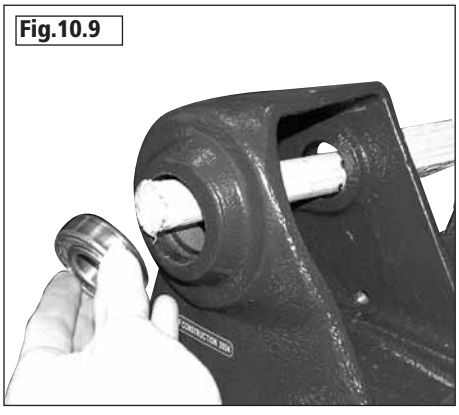
13.Screw the thread protector back on to the spindle. It is now ready to be fitted in the headstock.

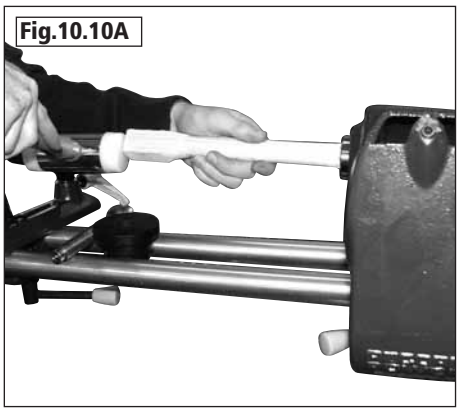


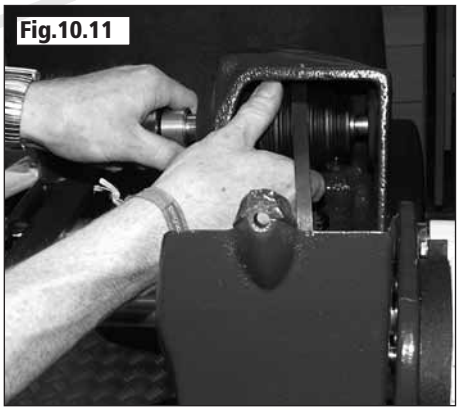












10. Maintenance - cont.

14. Slide the spindle back into the headstock and into the pulley. Ensure that the drive belt is fitted around the spindle pulley, **Fig.10.11**.

15. While the spindle and bearing is being knocked into place, one hand must be used to keep rotating the spindle a 1/4 turn at every strike of the mallet, **Fig.10.12**. This ensures that the spindle seats correctly in the bearings. You will feel the spindle seat against the headstock and there will be a dull thud as the mallet strikes the thread protector. This stage is now complete.

16. Replace the Allen bolt and large washer into the back of the headstock. Do not over tighten this, the bolt should only be turned until finger tight, **Fig. 10.13**, then apply a 1/4 of turn with an Allen key.

17. If not already done the drive belt should now be placed on the motor pulley and the spindle pulley adjusted so as to line up with the motor pulley, finally tighten the two grub screws into the spindle pulley, **Figs 10.14** & **10.15**.

18. Re-tension belt by applying slight downward pressure on motor then tighten the tension lever. With the belt in position and the headstock cover replaced the machine should be run for a little time to enable the belt to bed in.

Ensure that the lathe is switched off, the machine is unplugged and all tools and other items are clear of the machine. Make sure that the headstock cover is firmly locked in position before starting the lathe.

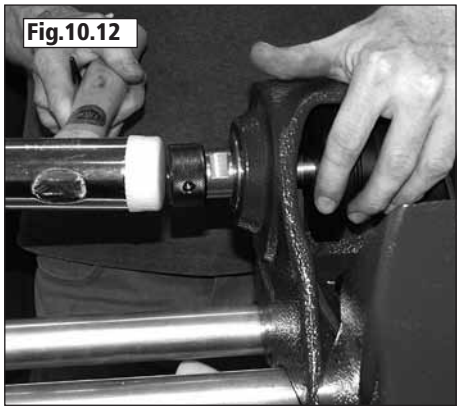


Fig.10.12


Fig.10.13

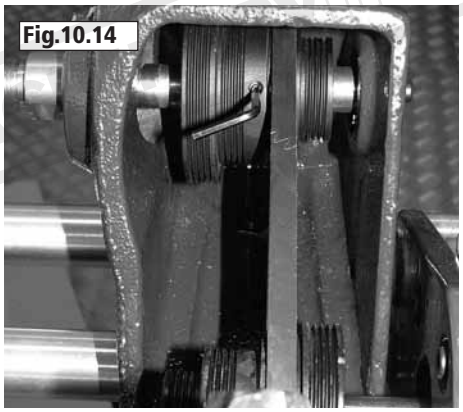


Fig.10.14

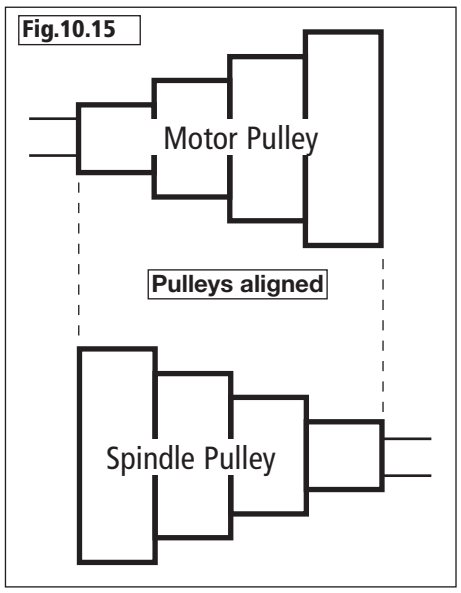
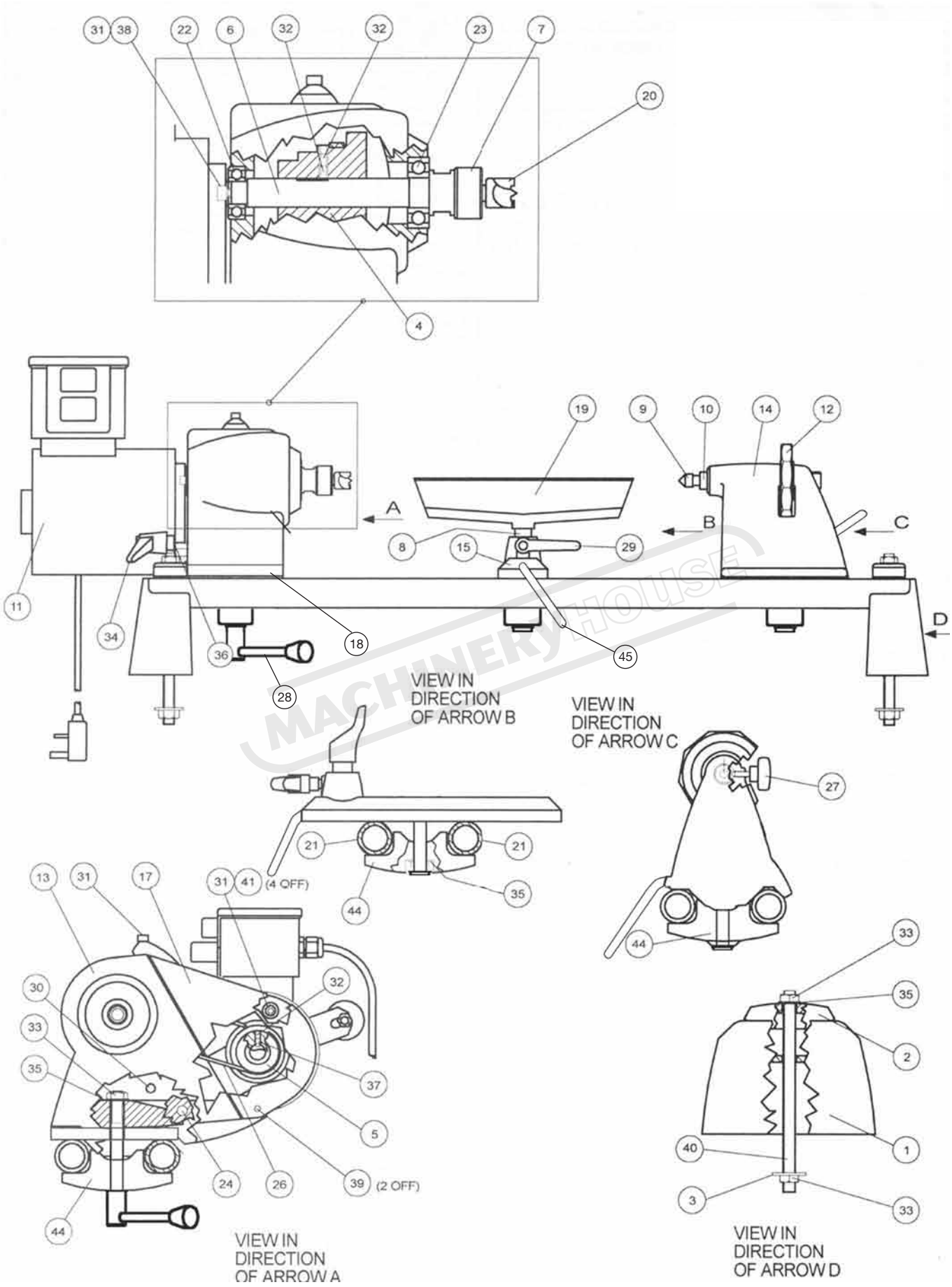


Fig.10.15

11. Troubleshooting

Symptom	Possible Cause	Possible Remedy
Motor will not start.	Not connected to power supply.	Check connection to power supply and re-try.
	Faulty fuse or circuit breaker tripped.	Check fuse and replace if necessary. Check circuit breaker and re-set if necessary
	Object in the path of workpiece.	Check that the work piece can rotate freely. Adjust tool rest so that it is clear of the workpiece.
	Faulty switch / control unit.	Have the switch or control unit inspected and replaced if necessary.
	Faulty motor.	Have the motor inspected and replaced if necessary.
Motor slows down / stalls or cuts out when in use.	Excessive pressure being applied to turning tool.	Reduce amount of force being exerted on the turning tool.
	'Dig in' caused by irregular shaped work piece / poor technique.	Reduce the spindle speed to provide more torque. Reduce amount of force being exerted on the turning tool. Sharpen turning tools regularly.
	Turning tool edge has become dull.	Sharpen the tool regularly.
	Headstock drive centre not seated correctly.	Remove drive centre and ensure that the taper is clean and free from foreign bodies. Re-seat the drive centre by tapping it firmly in to the headstock spindle using a soft faced mallet.
	Faulty motor.	Have the motor inspected and replaced if necessary.
	Circuit overloaded by other tools or lighting.	Decrease the load on the circuit by removing or switching off other tools etc.
	Circuit too long or undersized wires.	Avoid using extension leads. Check that any leads used are of suitable cross section and diameter. Have the circuit checked by a qualified electrician.
	Voltage too low.	Have the circuit checked by a qualified electrician.
	Circuit breaker does not have sufficient capacity.	Have the circuit checked by a qualified electrician.
	Insufficient belt tension allowing motor pulley to slip.	Check the belt tension and adjust as necessary. Check for oil or other waste material on the surface of the pulleys and belt. Clean as necessary.
Excessive noise or vibration from motor / headstock.	Loose pulley.	Check that retaining screws in both pulleys are fully tight. Note the procedure outlined in this manual for correct fitting and adjustment of pulleys, **section 6**.
	Motor fan cover damaged or loose or making contact with motor fan.	Check the fan cover for damage and clearance. Adjust as necessary.
	Incorrect pulley alignment.	Check and adjust pulleys as described in **section 6**.
	Bearing faulty.	Check both bearings and replace if necessary.
	Faulty motor bearing.	Have the motor inspected and replaced if necessary.
	Machine not correctly assembled.	Check the correct configuration of the kinematic clamping points as detailed in these assembly instructions, **section 6**.
Tailstock or tool rest cam locking device not effective.	Incorrect adjustment.	Adjust nyloc nut to increase or decrease force exerted by the cam mechanism as described in **section 6**.

12. Spare Part Identification



13. Spare Part Identification - cont.

ITEM No.	PART No.	DESCRIPTION	QTY
1	**ZBD**	End bracket	2
2	**ZBH**	Angle strap	2
3	**ZAES**	Washer – M12 large	2
4	**CKSM**	Spindle pulley – 4 speed	1
5	**CKMM**	Motor pulley – 4 speed	1
6	**ZBQ**	Main spindle	1
7	**ZCP**	Thread protector	1
8	**ZBW**	Toolrest stem	1
9	**ZPN**	90º Back centre	1
10	**ZBR**	Tailstock barrel	1
11	**BOPM**	Motor Plate,	1
		Switch, Cable & Plug (U.K.)	
		For replacement for other than U.K. please specify	
12	**ZBA**	Handwheel	1
13	**CKHS**	Headstock	1
14	**ZBC-CAM**	Tailstock	1
15	**ZBE-CAM**	Tool rest base	1
17	**ZBJ**	Belt guard	1
18	**CKSS**	Saddle	1
19	**ZCF**	10″ Toolrest	1
20	**ZPI**	5/8″ 2 Prong centre	1
21	**CKBT**	Bed bar	2
22	**ZABD**	Bearing – 6202ZZ	1
23	**ZABE**	Bearing – 6204ZZ	1
24	**ZBS**	Motor plate pivot	1
25	**ZCA**	Pry bar #	1
26	**ZBO**	Poly V-belt, 4 rib	1
27	**CLKB**	M6 Dog point knob	1
28	**BOBT**	Locking Handle M12 Male	2
29	**CLRC**	M8 Ratchet handle - Toolrest	1
30	**ZABI**	M10 x 35mm Threaded bar	1
31	**ZABK**	M6 x 18mm Socket head cap screw	6
32	**ZABL**	M6 x 8mm Socket grub screw	3
33	**ZABM-C**	Nut – M12	5
34	**CLRG**	M10 Ratchet handle	1
35	**ZABO**	Washer – M12	7
36	**ZABP**	Washer – M10	1
37	**ZABR**	M6 x 10mm dog point grub screw	1
38	**ZABS**	Bellville washer	1
39	**ZABT**	M6 x 20mm Sellock pin	3
40	**BOAF**	M12 x 210mm Threaded bar	2
41	**ZAEW**	Washer – M6	4
42	**ZACJ**	3mm Hexagonal wrench #	1
43	**ZADA**	5mm Hexagonal wrench #	1
44	**CKPS**	Square strap	2
45	**BOBT**	Locking Handle M12 Female	1
46	**CKCB**	M12 x 80mm Cup Square	1
47	**ZZBU**	Bush	2

Not illustrated in parts diagram.

14. Electrical Connection & Wiring Diagram

Machines supplied for use in the UK are fitted with a 3 pin plug conforming to BS1363, fitted with a fuse conforming to BS1362 and appropriate to the current rating of the machine.

Machines supplied for use in other countries within the European Union are fitted with a 2 pin Schuko plug conforming to CEE 7/7.

Machines supplied for use in Australia & New Zealand are fitted with a 3 pin plug conforming to AS/NZS3112.

In all cases, if the original plug or connector has to be replaced for any reason, the wires within the mains power cable are colour coded as follows:

230 V (Single Phase)

Brown:	Live (L)
Blue:	Neutral (N)
Green and Yellow:	Earth (E)

The wire coloured brown must always be connected to the terminal marked 'L' or coloured red.

The wire coloured blue must always be connected to the terminal marked 'N' or coloured black.

The wire coloured green and yellow must always be connected to the terminal marked 'E' or with the earth symbol:

or coloured green / green and yellow.

It is important that the machine is effectively earthed. Some machines will be clearly marked with the double insulated logo:

In this case there will not be an earth wire within the circuit.

In the case of the BS1363 plug for use in the UK, always ensure that it is fitted with a fuse conforming to BS1362 appropriate to the rating of the machine. If replacing the original fuse, always fit a fuse of equivalent rating to the original. Never fit a fuse of a higher rating than the original. Never modify the fuse or fuse holder to accept fuses of a different type or size.

Where the current rating of the machine exceeds 13 A at 230 V, or if the machine is designated for use on a 400 V 3 phase supply a connector conforming to BS4343 (CEE17 / IEC60309) will be used.

230 V machines will be fitted with a blue 3 pin connector. The wiring for this type of this connector will be the same as shown above.

400 V, 3 phase machines will be fitted with a red 4 or 5 pin connector. The wiring for this type of connector is as shown below:

400 V (3 phase)

Brown:	Live (L1)
Black:	Live (L2)
Grey:	Live (L 3)
Blue:	Neutral (N)
Green and Yellow:	Earth (E)

The wire coloured brown must always be connected to the terminal marked 'L1'.

The wire coloured black must always be fitted to the terminal marked 'L2'.

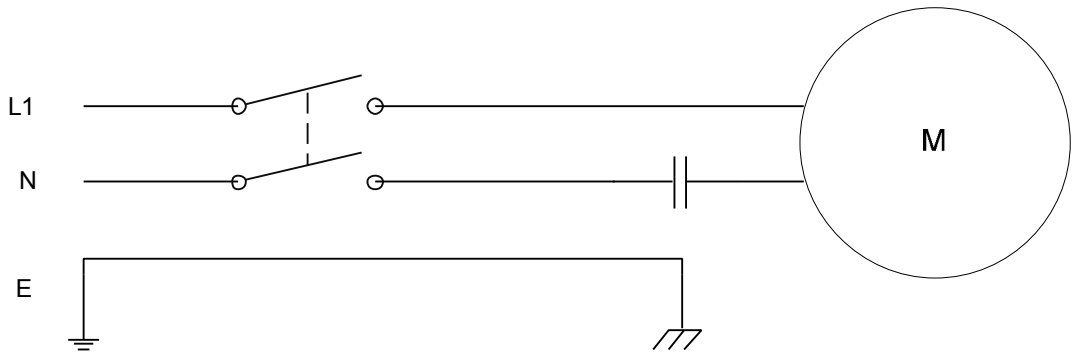
The wire coloured grey must always be connected to the terminal marked 'L3'.

The wire coloured blue must always be connected to the terminal marked 'N' or coloured black.

The wire coloured green and yellow must always be connected to the terminal marked 'E' or with the earth symbol

If in doubt about the connection of the electrical supply, always consult a qualified electrician.

DML36SH-CAM Wiring Diagram



L1 = Live (Brown)

N = Neutral (Blue)

E = Earth (Yellow / Green)

15. DML-BR Bowl Turning Attachment Assembly

Warning: Ensure that the power supply to the lathe is turned off and disconnected before starting the conversion of your existing lathe.

1. Check items supplied against **Fig 15.1** shown before proceeding with conversion of the lathe.

2. Clear unnecessary items from the area of your lathe to ensure that no parts are lost during the change over.

3. Unlock headstock clamp and slide the assembly towards the tailstock end of the bed tubes, **Fig 15.2**.

4. Release M12 nut and washer securing end bracket, **Fig 15.3**.

NOTE: If the lathe is mounted on the DML24S Legstand, the legs must also be removed and refitted to new end bracket.

5. Now Re-attach the DML24S Legstand (if used) to the replacement end bracket, **Fig 15.4**.

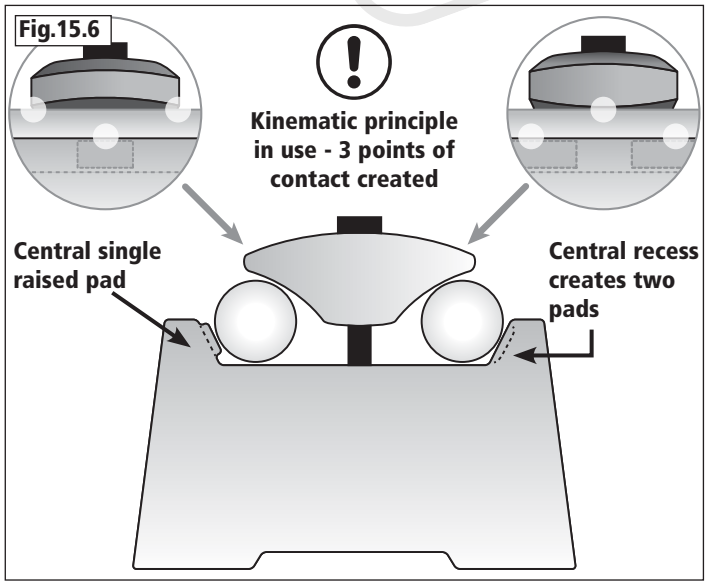
6. Refit bed rails and secure using M12 Nut. Threaded bar and washer, **Fig 15.5**.

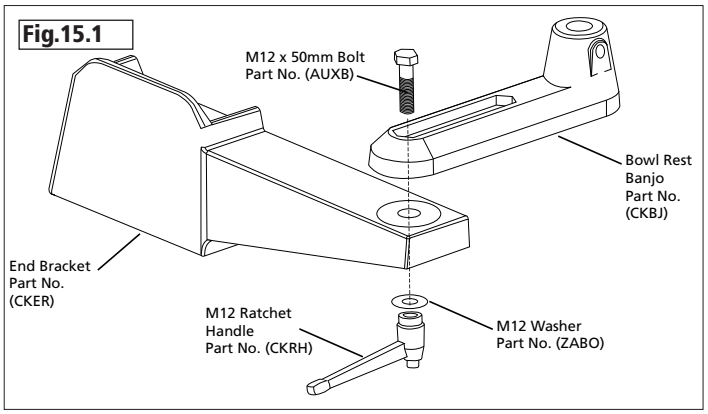
7. Check bed rails for alignment as outlined in **section 6** before proceeding.

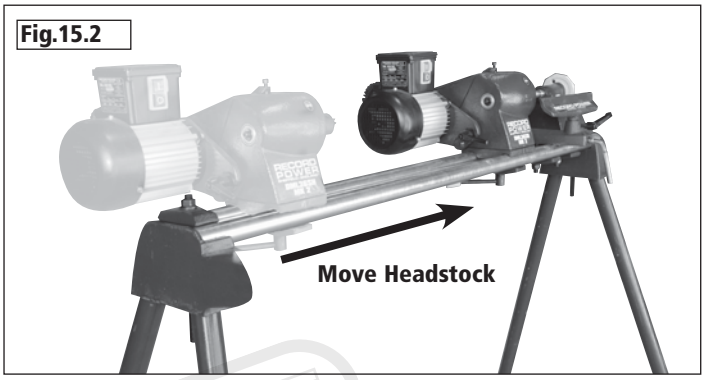
8. Secure Bowl Rest Banjo to End Bracket using M12 x 50mm Bolt, Washer and M12 Ratchet Handle.

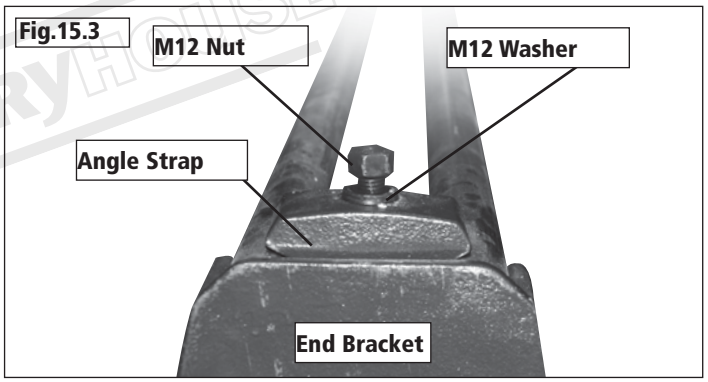
9. Adjust banjo/toolrest to suit your workpiece. Your bowl rest is now ready for use.

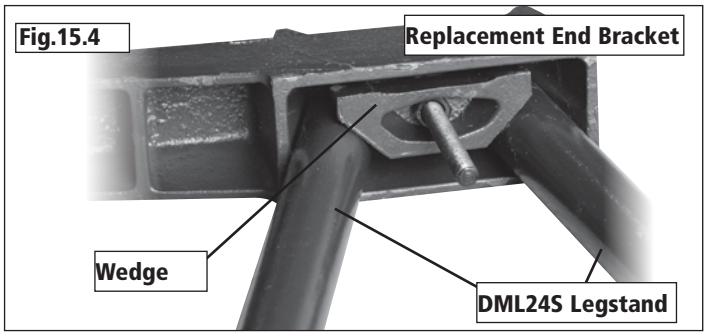
Please note: When re-assembling the lathe, ensure the kinematic points are assembled in the correct configuration. See Fig 15.6.

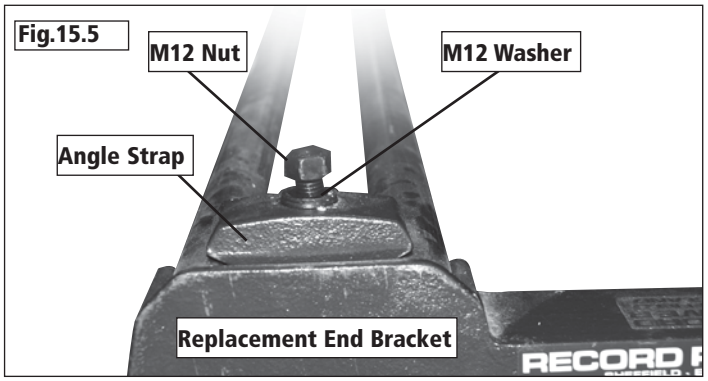












EU Declaration of Conformity

Cert No: EU / DML36SH-CAM / 1

RECORD POWER LIMITED, Unit B, Adelphi Way, Ireland Industrial Estate, Staveley, Chesterfield, Derbyshire S43 3LS
declares that the machinery described:-

1. Type: Professional Woodturning Lathe

2. Model No: DML36SH-CAM

3. Serial No .....

Conforms with the following directives:-

MACHINERY DIRECTIVE	2006/42EC
LOW VOLTAGE DIRECTIVE	2006/95EC
ELECTROMAGNETIC COMPATIBILITY DIRECTIVE and its subsequent amendments	2004/108EC EN55014-1:2006 EN55014-2:1997+A1 EN61000-3-2:2006 EN61000-3-3:1995+A1+A2

and complies with the relevant essential health and safety requirements.

Signed ..... Dated: 01.10.2012

Andrew Greensted
Managing Director