

INSTRUCTION MANUAL

CL3-CAM

Professional 5 Speed Wood Lathe (240V)
305 x 914mm



R801

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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.

MACHINERYHOUSE

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

MACHINERYHOUSE

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 2.5mm² 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 300 mm 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 400 mm. 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.
 - 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

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

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. CL3-CAM & CL4-CAM Specifications

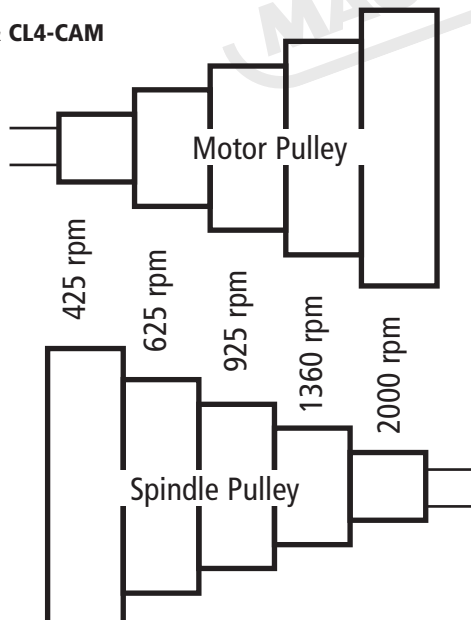
Maximum distance between centres:	36" (194 mm)
Maximum bowl diameter over bed:	12" (305 mm)
Maximum spindle diameter:	9" (229 mm)
Maximum bowl diameter with optional:	
CL3/B end turning bracket:	30" (762 mm)
Pulley Speeds (smallest to largest diameter):	425, 625, 925, 1360, 2000 rpm
Drive Belt:	Poly V
Main Bearing:	Phosphor bronze (adjustable)
Spindle Nose:	3/4" x 16 tpi
Motor Power:	CL3-CAM: 3/4 hp (550 W) CL4-CAM: 1 hp (750 W)
Continuous Rating:	CL3-CAM: 240 V, 1 Phase, 50 Hz CL4-CAM: 380/415 V, 3 Phase, 50 Hz (uses 240 V single phase supply)
RPM:	1380min -1
Inverter (CL4-CAM only):	230 V - 50 Hz 750 W. 15 - 100 Hz frequency output range
Inverter enclosure rating (CL4-CAM only):	IP55 (dust proof)
Noise Emission: Sound power level	< 85dB (A)
Sound pressure level	< 85dB (A)
Length:	1625 mm
Depth:	381 mm
Height:	368 mm
Weight:	CL3-CAM: 86 kg CL4-CAM: 90 kg

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.

CL3-CAM & CL4-CAM PULLEY SPEED RANGES

By changing the belt on to each of the five different pulleys the speed can be varied from 425 to 2000 rpm.

CL3-CAM & CL4-CAM



CL4-CAM PULLEY & VSLK SPEED RANGES

By changing the belt on to each of the five different pulleys and using the VSLK controls, the speed and torque can be fully varied from 13 to 4648 rpm.

CL4-CAM

Speed Setting	Pulley Steps				
	425	625	925	1360	2000
10	1029	1453	2150	3161	4648
9	926	1308	1935	2845	4184
8	823	1162	1720	2529	3718
7	720	1017	1505	2213	3254
6	617	872	1290	1897	2789
5	515	727	1075	1581	2324
4	417	581	860	1264	1859
3	309	436	645	948	1394
2	206	291	430	632	930
1	103	145	215	316	465
0	13	18	27	40	58



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

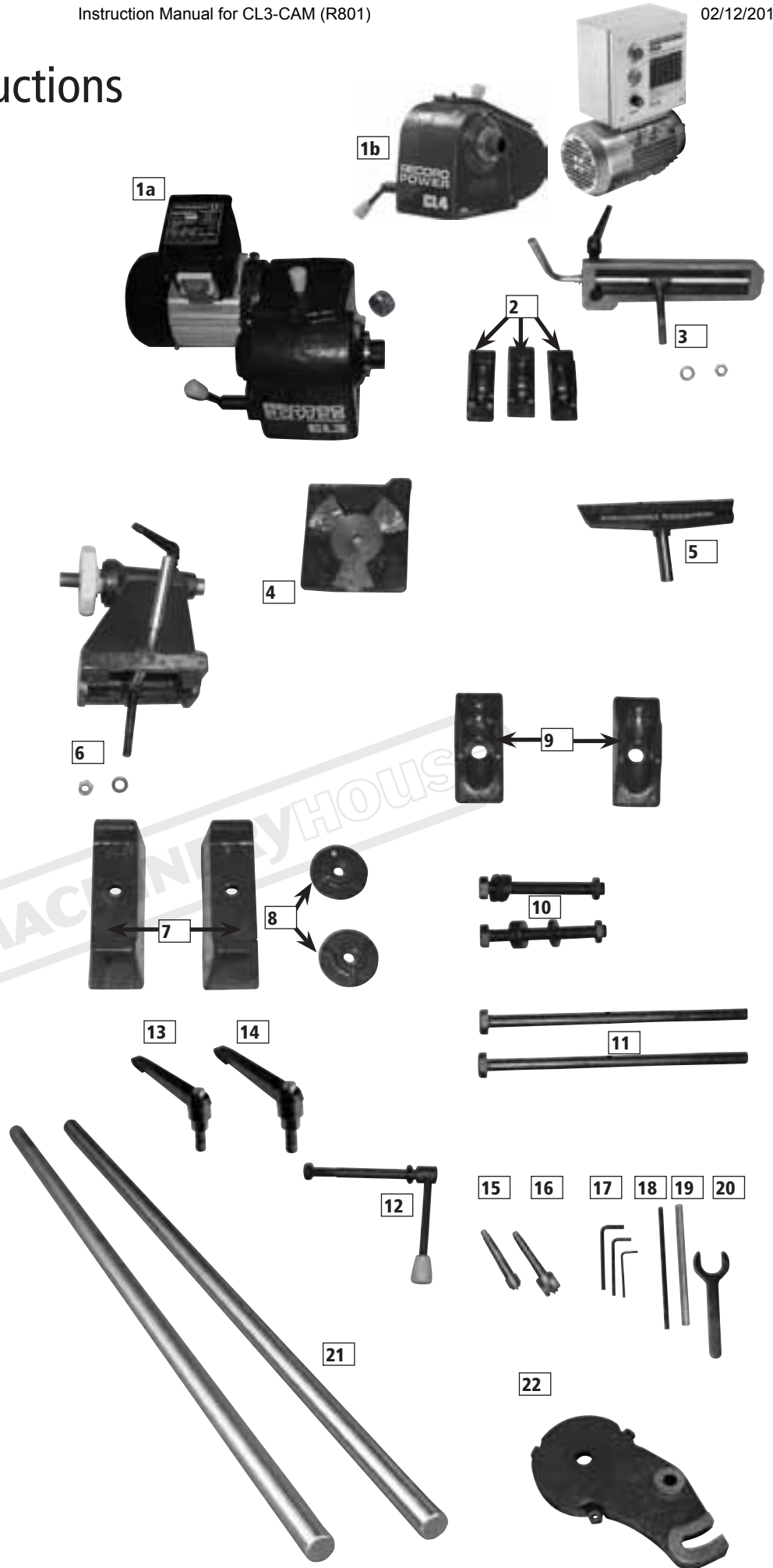
the stool to become unstable and move. Record Power apply the kinematic design theory to the CL3-CAM and CL4-CAM lathes, wherever there is a critical piece of the structure being assembled kinematics are employed giving unsurpassed stability and rock solid performance. Please take care to follow all 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:

- 1a. CL3-CAM Headstock with motor & thread protector
- 1b. CL4-CAM Headstock & VSLK unit
2. 3 x Square straps
3. Cam lock banjo, washer and nyloc nut
4. Saddle
5. Toolrest
6. Tailstock, including pre-installed brass pad, washer and nyloc nut
7. 2 x End brackets
8. 2 x Wooden bench mounting washers (not required on RPLB24-48 lathe bench, for use when mounting to a wooden bench)
9. 2 x Angle straps
10. 2 x Display mount bolts (for retailer use)
11. 2 x Long bolts
12. Long stem locking handle
13. Small ratchet handle for tailstock
14. Large ratchet handle for toolrest
15. Tailstock centre
16. Four prong drive centre
17. 3 x Allen keys
18. Pry bar
19. Brass rod- 20. Spanner
- 21. 2 x bed bars (separate box)
- 22. Motor plate (CL4-CAM only)



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 RPLB24-48 Lathe Bench. 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

- 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.
- 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" (50 mm) 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.

Initial assembly

Please Note: If you are fitting a CL3/B bowl turning rest, please refer to sections 15 - 18. The end turning bracket supplied with the CL3/B permanently replaces the head stock end bracket supplied with the lathe, see Fig. 6.1.

(Shown using optional RPLB24-48 Lathe Bench. For assembly instructions for this product please see sections 19 - 22).

- Place the end brackets **Fig. 6.1B**, in position at either end of where the lathe will be assembled, ensuring that the mounting holes are aligned and that the end brackets are flush with the front edge of the mounting plate (if fitting to RPLB24-48). Another key point at this stage is to make sure that the kinematic location points are in the same position on both end brackets i.e. both single raised areas (**Fig 6.1d**) to the front with the recess at the back. (**Fig. 6.1c**).

If the lathe is to be assembled on a bench other than the RPLB24-48 bench please refer to **Fig 6.1a** for location measurements.

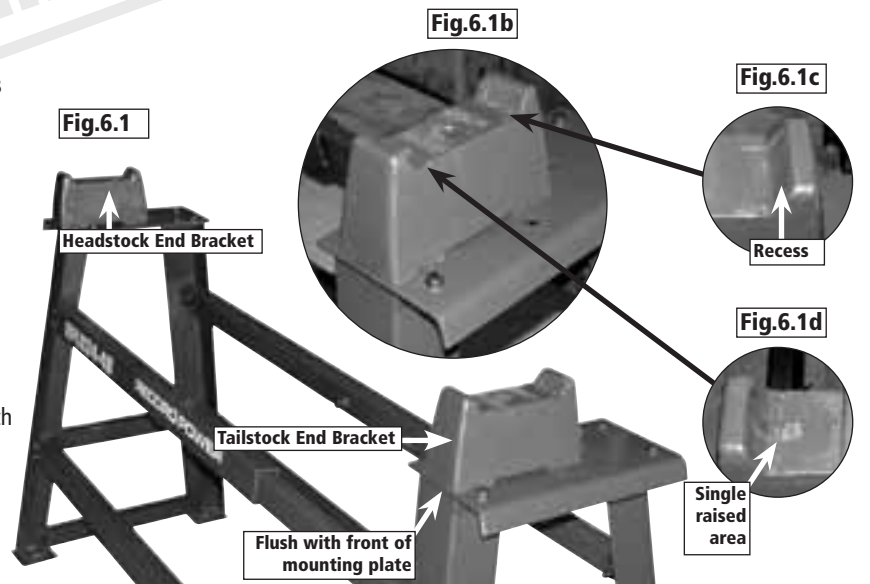
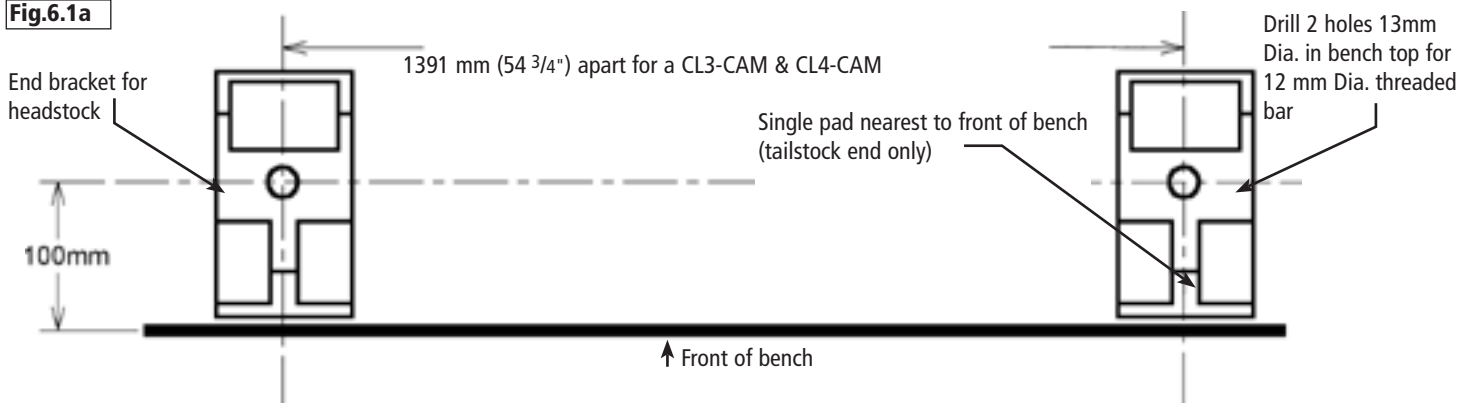


Fig.6.1a



6. Assembly Instructions & - cont.

Angle Straps & Bed Bars

2. Introduce the angle straps to each of the end brackets positioned at either end of the assembly area. The angle straps should initially be placed at 90° to the end brackets. Insert the long bolts through the strap, end bracket and mounting plate **Fig. 6.2**.

3. Screw the nut and washer onto to the long bolts, don't tighten at this stage as the angle straps will need to be re-positioned. **Fig. 6.3**.

If the lathe is being mounted onto a wooden bench, the cast bench mounting washers should be utilised in between the nut and underside of the wooden bench, **Fig 9.1, section 9**.

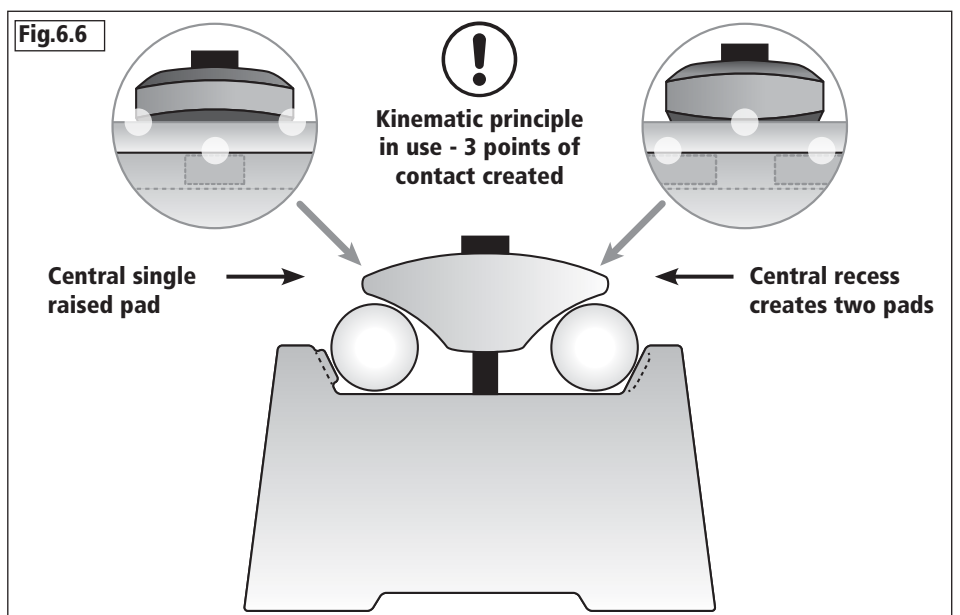
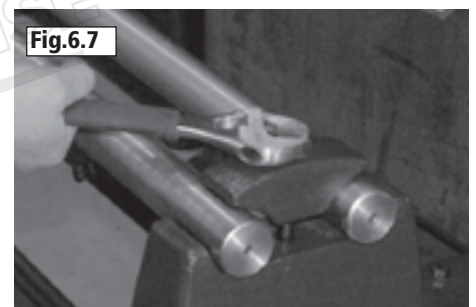
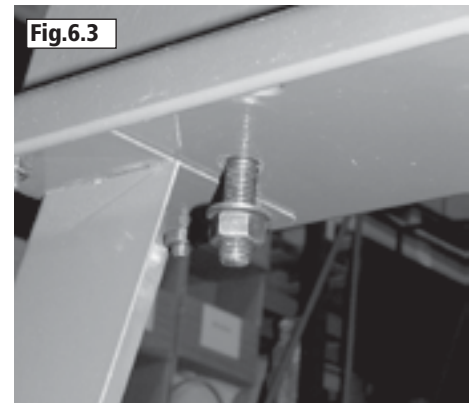
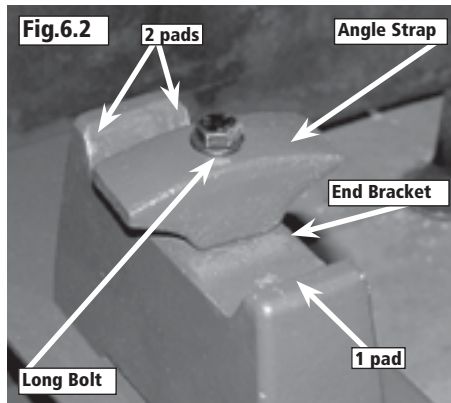
4. Both angle straps should now be at 90° to the end brackets with nut and washer screwed on to the long bolts ready for the bed bars **Fig. 6.4**.

5. Place the bed bars on the end brackets in the gaps left by the angle straps ensuring that there is equal over hang at each end. **Fig. 6.5**.

6. Now align the angle straps to straddle the bed bars. The angle straps must be positioned so that the kinematic points oppose the end brackets, **Fig. 6.6** i.e. on the end brackets we placed the single raised area to the front of the lathe, therefore the angle strap should oppose this with the concave side, **Fig. 6.6**, being at the front of the lathe.

7. Once the angle straps and bed bars are correctly positioned tighten up the long bolts to secure this stage of the assembly. The nut underneath will need to be held with a second spanner or pair of mole grips while the bolt is tightened from the top (not supplied).

Fig. 6.7.



6. Assembly Instructions - cont.

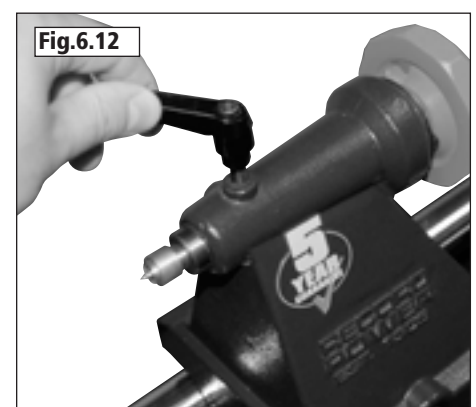
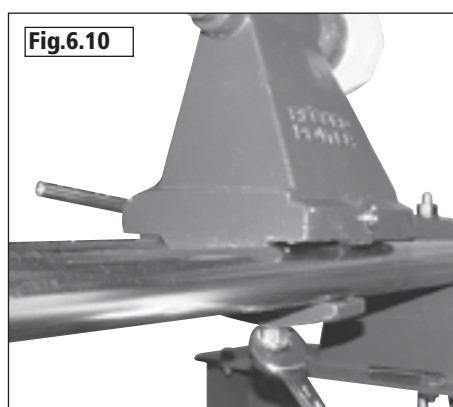
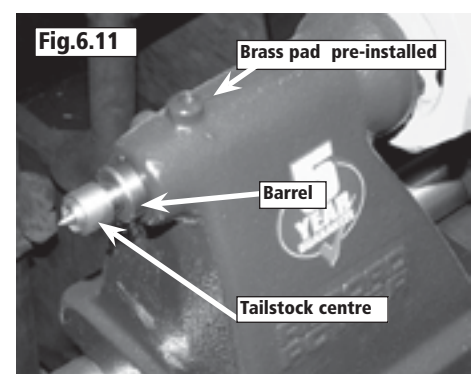
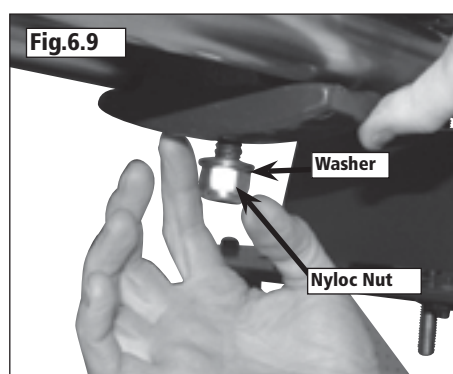
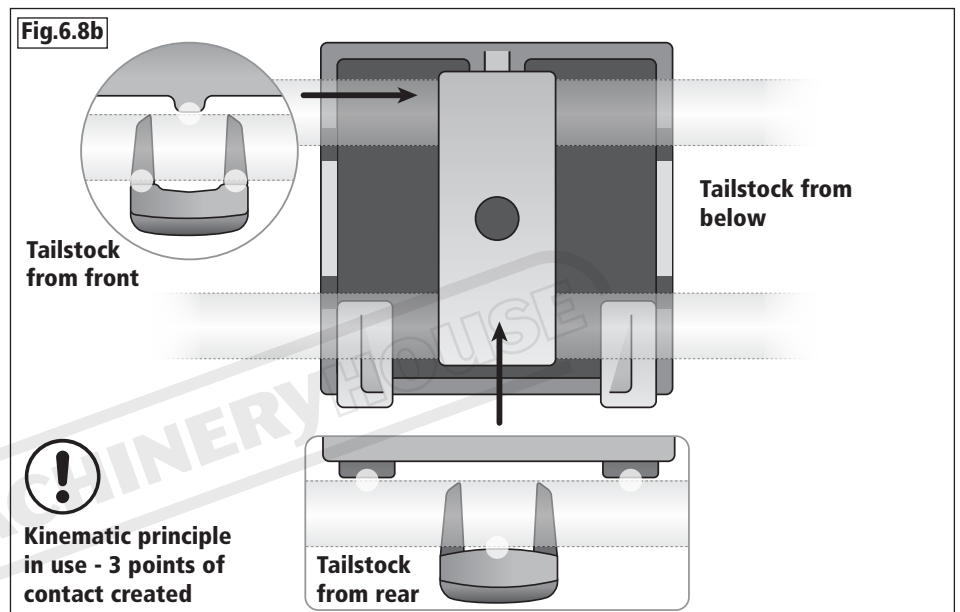
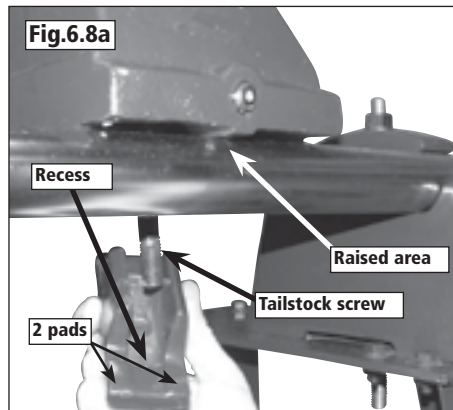
Attaching the tailstock

1. Place the tailstock onto the bed bars at the right hand end of the assembly, again noting that the single point 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 double point recess is to the front of the lathe opposing the raised area on the tailstock, **Figs.6.8a & 6.8b**.
3. Place the washer onto the tailstock screw and tighten the nyloc nut to secure the assembly **Fig.6.9**.
4. Use a spanner (not supplied) to tighten the Nyloc nut on the underside of the tailstock assembly **Fig.6.10**.



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. Now take the tailstock centre and place into the barrel of the tailstock. On the top of the tailstock there is a small hole - this is where the pre-installed brass pad is found **Fig. 6.11**.
6. Screw in the tailstock ratchet handle (item 13), **Fig. 6.12**. The tailstock assembly is now complete.



6. Assembly Instructions - cont.

Banjo & Toolrest Assembly

1. Place the flat side of the banjo onto the bed bars **Fig.6.13**.

2. Introduce the square strap underneath the bed bars and feed the banjo screw through the hole in the square strap **Fig.6.14**.

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).

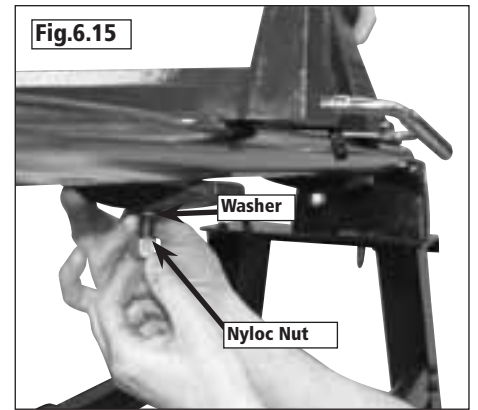
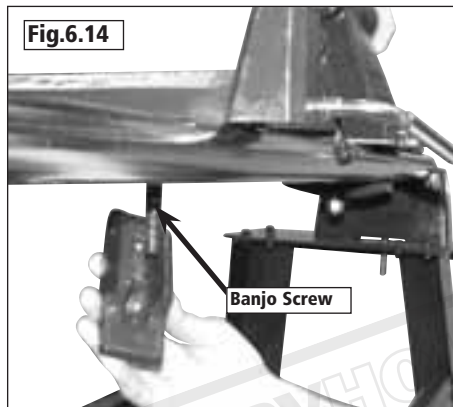
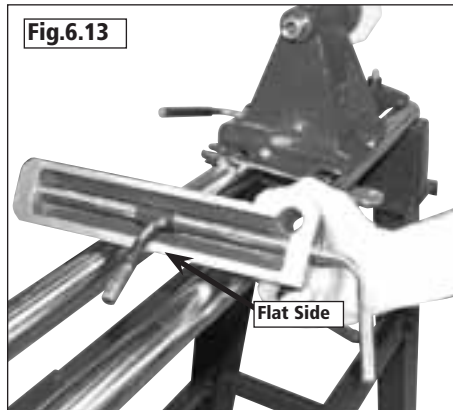
3. Place the washer (item 3) onto the banjo screw and tighten the Nyloc nut (Item 3) to secure the assembly **Fig.6.15**.

4. As before, use a spanner to tighten the nyloc nut on the underside of the toolrest assembly. The banjo and tool rest are now assembled, **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 (item 5) and long locking handle into the banjo to complete assembly of the tool rest, **Fig 6.15**.



6. Assembly Instructions - cont.

CL3-CAM Headstock Assembly



Please note: It is much easier to assemble the headstock with the CL3-CAM motor removed. See below for instructions on how to remove the motor.

1. Disconnect lathe from power source.
2. Remove headstock cover, slacken the belt tensioner **Fig.6.16** and remove the drive belt from the motor pulley, **Fig 6.17**.
3. There is a hole in the motor pulley, **Fig 6.18**, which contains 2 grub screws, **Fig 6.19**. Remove both screws, **Fig 6.20**, keeping them safely to one side for re-assembly.
4. Completely remove the belt tensioning lever by holding the nut on the inside of the head stock securely whilst unscrewing the lever, **Fig 6.21**. After removal, keep both the nut and lever safe for re-assembly.
5. Lift the motor and the motor plate casting from the lathe headstock **Fig.6.22**.
6. Carefully lever the motor pulley off the motor shaft **Fig.6.22**.

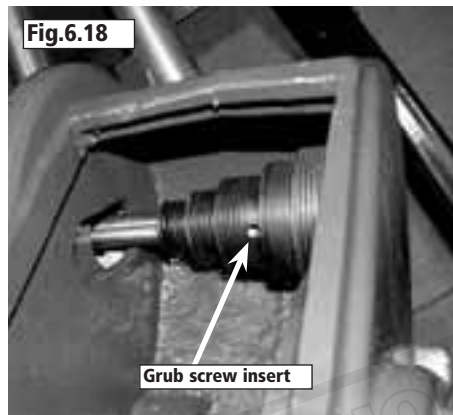
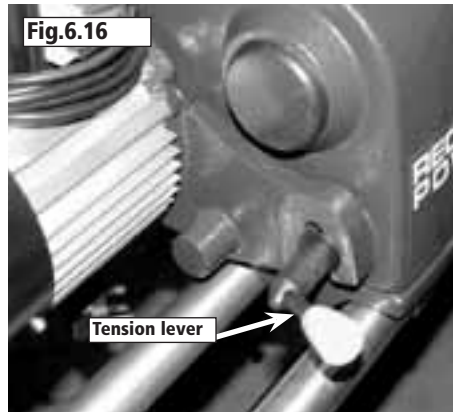


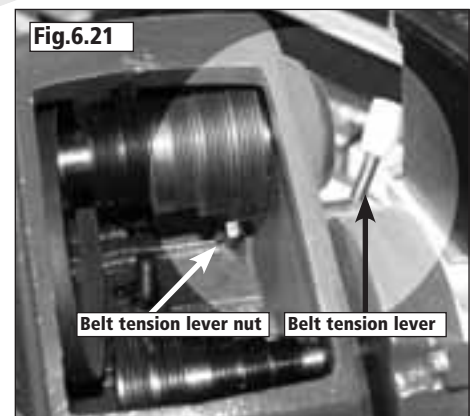
Fig.6.19

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.

CL3-CAM Headstock Assembly

16. Remove the cover plate from the headstock using the Allen key, **Fig.6.23**.

17. Place the saddle on to the bed bars to the left hand side of the toolrest with the single pad and the label to the front of the lathe **Fig. 6.24**.



Caution: This component is very heavy and assistance should be sought.

18. Insert the headstock locking handle (item 12) through the remaining square strap and offer this up through the saddle and into the headstock, ensuring the side with 2 pads is at the front, opposing the single pad of the headstock, **Fig. 6.25**.

19. Ensuring that the hex head nut is located against the wall of the recess inside the headstock, tighten the locking bar into the nut securing the headstock assembly **Fig. 6.26**.

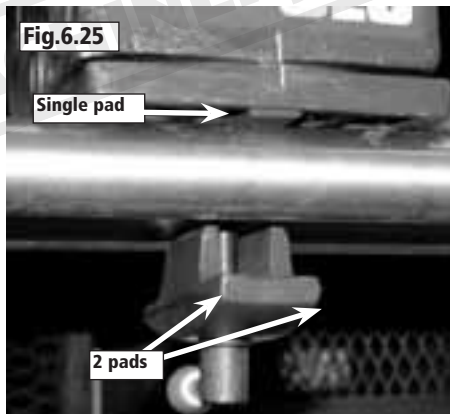
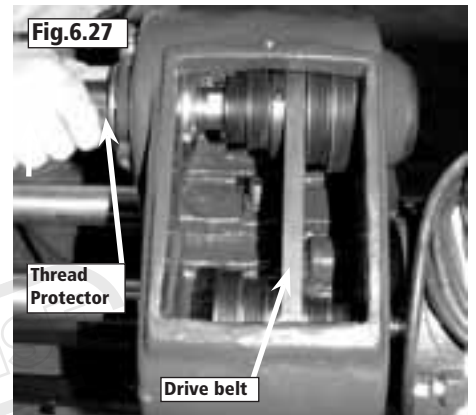
20. The motor, pulley and belt now need to be re-fitted. Please follow steps 2- 6 on the previous page in reverse order to re-fit.

Rotate the thread protector (item 23) by hand and inspect the drive belt on the pulleys ensuring that it runs true **Fig.6.27**. If it doesn't, slide the stepped pulley along the motor shaft until the correct position is achieved and the belt is aligned straight.

21. Now tighten the dog grub screw which has been inserted previously. 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.6.28**.

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

The assembly of the CL3-CAM lathe is now complete, **Fig. 6.46**.



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.

CL4-CAM Headstock Assembly



Please note: The CL4-CAM is packaged with the motor plate attached. This will need to be removed and fitted to the VSLK unit.

1. Remove headstock cover, **Fig.6.29** and slacken the belt tensioner **Fig.6.30**.
2. Completely remove the belt tensioning lever by holding the nut on the inside of the head stock securely whilst unscrewing the lever, **Fig 6.31** After removal, keep both the nut and lever safe for re-assembly.
3. Lift motor plate casting from the lathe headstock **Fig.6.32**.



Fig.6.29

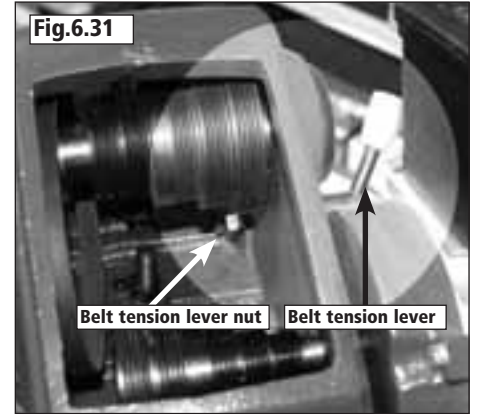


Fig.6.31

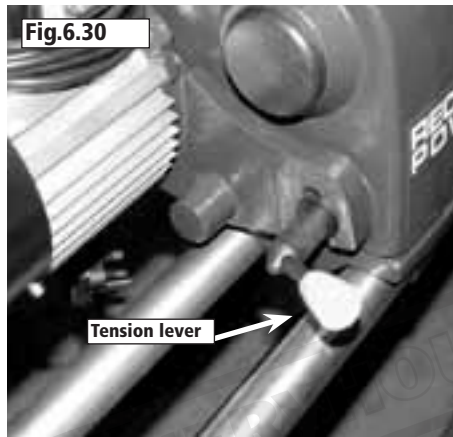


Fig.6.30



Fig.6.32

MACHINERY

6. Assembly Instructions - cont.

CL4-CAM Motor Assembly (VSLK)

1. Take the motor plate and pivot pin and attach it to the VSLK unit using the 4 Allen bolts supplied with the VSLK **Fig.6.33**.



Please note: The CL4-CAM head stock must now be attached to the bed bars. Follow steps 16-21 of the CL3-CAM Head Stock Assembly instructions before proceeding to step 2 below.

2. Take the stepped motor pulley and remove the grub screw, this will reveal a dog grub screw, **Fig 6.34**, remove this as well. The pulley is now ready to fit to the motor. Offer the motor unit up to the headstock and slide the motor shaft into the motor pulley on the inside of the headstock. Ensure that the pivot pin is seated in the hole at the base of the headstock **Fig.6.35**.

3. Insert the tension release lever into the headstock **Fig.6.36**. Screw the nut onto the thread of the tension lever which is showing through the inside of the headstock **Fig.6.37** ensuring that the nut seats against the roll pin. Lower the motor assembly and tighten the tension lever to secure the motor assembly on the headstock. Do not fully tighten yet.

4. The motor pulley should be positioned so the grub screw insert is aligned with the groove on the motor shaft **Fig.6.34**. The dog grub screw should now be inserted to secure the location of the motor pulley on the spindle. Don't fully tighten at this stage as the motor pulley position may need to be adjusted.

5. Pivot the motor unit forward by lifting from below so the drive belt can be placed onto the motor pulley. Position the belt on the centre step of the pulleys and lower the motor unit back down, tensioning the drive belt. Now rotate the thread protector by hand and inspect the drive belt on the pulleys ensuring that it runs true **Fig.6.38**. If it doesn't, 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 screw which has been inserted previously. 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.6.39**.

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

The assembly of the CL4-CAM lathe is now complete, **Fig.6.47**.

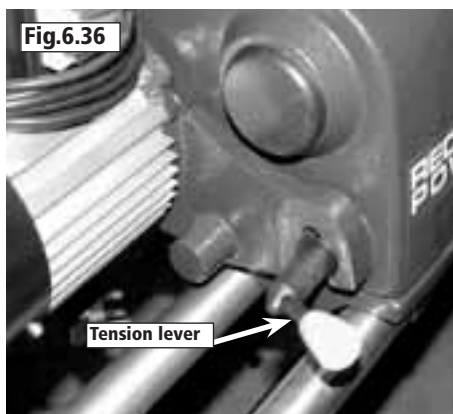
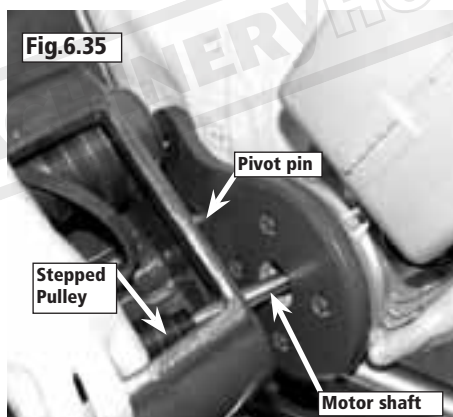
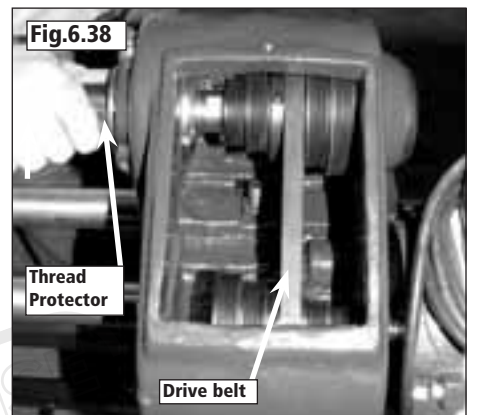
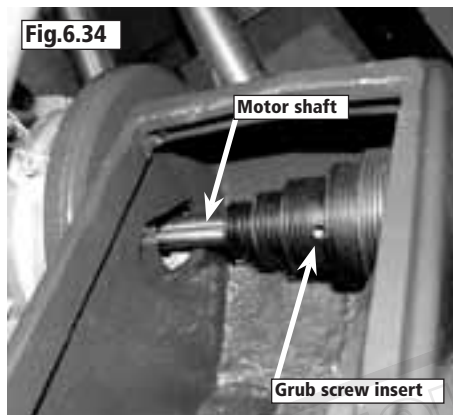
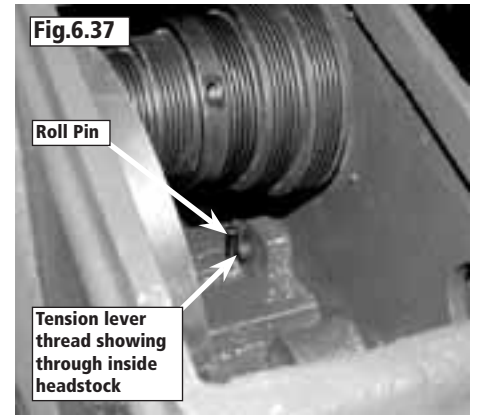
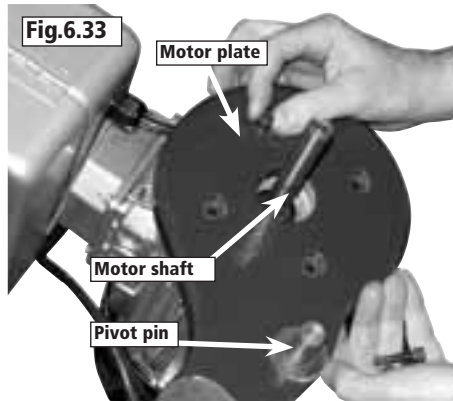


Fig.6.40

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.

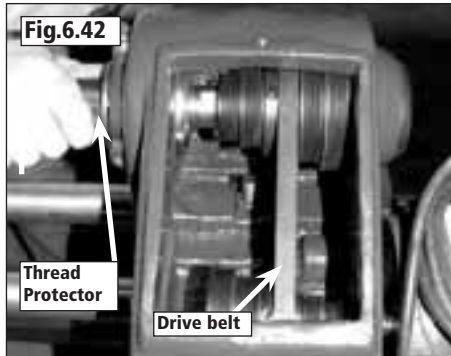


6. Assembly Instructions - cont.

Pulley Alignment

Correct pulley alignment is necessary in order to minimise vibration. To check correct alignment please follow the instructions below:

1. Ensuring the lathe is unplugged, remove the cover plate (belt guard) **Fig 6.41**.
2. Rotate the thread protector by hand and inspect the drive belt's position on the pulley to ensure it is running true, **Fig 6.42**.
3. If the drive belt is not running true, remove the locking grub screw, **Fig 6.43 A**, and dog screw, **Fig 6.43 B**, taking care to keep them in a safe place, then slide the motor pulley along the shaft until correct alignment is achieved.
4. When the pulley is correctly aligned, replace the dog screw, ensuring it is located in the slot on the shaft and tightened. Lock this in place with the knurled screw on top.



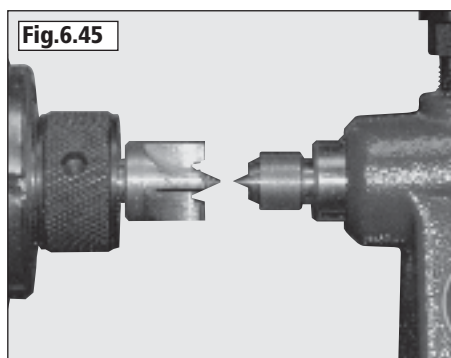
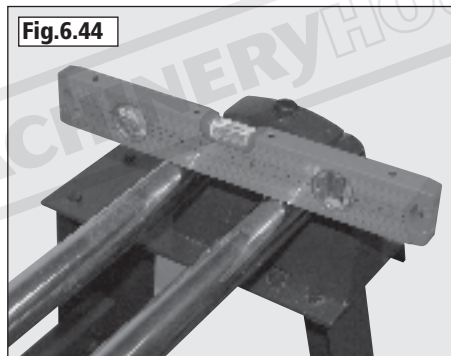
Levelling the Lathe

It is important to level the lathe as accurately as you can as an out of level lathe can affect vibration and accurate alignment of headstock and tailstock. Before finally tightening all parts securely check and adjust for level as follows; Place a spirit level across the two bed bars, at each end of the lathe, **Fig.6.44**.

Bring the headstock and tailstock centres together (with the drive centre and tailstock centres fitted) and check for alignment of the centres both vertically and horizontally, **Fig.6.45**.

If the centres do not line up correctly, or the spirit level shows a different reading at each end of the machine, it suggests that either the bench top is uneven or the floor is not level, which is causing the bench or stand to twist due to the weight of the lathe. To correct this, you should apply spacer shims on the underside of the end brackets at the point of contact with the surface bench or stand, at the appropriate point. For example, if the spirit level shows that the front bar is lower than the rear bar at one end, a suitable shim should be placed under the front edge of that end bracket in order to correct the error. The type and thickness of the shim will depend on the degree of distortion across the bed of the lathe. Alternatively you can shim underneath the feet of the bench or lathe stand.

When you are happy that the centres are correctly aligned, then all fixings should be fully tightened.



6. Assembly Instructions - cont.

Fig.6.46



Fig.6.47



7. Lubricating the Bronze Bearing Before Use

The unique Tapered Bronze Bearing System, incorporated in these lathes, is a long established and proven design. Recognised by professional wood turners throughout the world for its qualities of smooth running, optimum accuracy, high load bearing capacity, long life and precision adjustment. It is used by thousands of wood turners and this unique bearing should work tirelessly for many years provided that it is used and maintained properly.



Oiling The Bearing

1. Before first use, and before the lathe is used on all subsequent occasions a tiny amount (5-6 drops) of oil should be added to the bearing **Fig 7.1**. This procedure should also be carried out every two hours during prolonged use. It is recommended to use Record Power RPSO-100 which is designed specifically for use with the Record Power bronze bearing system. If this is not available, automotive grade 30W oil can be substituted.

IMPORTANT: The bearing does not need a lot of oil but must not be allowed to dry out.

Running The Lathe In

2. To assure longer bearing life, before first use the lathe must be "Run-In" for three hours on the middle step of the pulley (CL3-CAM) and speed setting 4 on the CL4-CAM.

WARNING: Unattended machines can be dangerous. Be sure people and pets will not be exposed to the running lathe during this period.

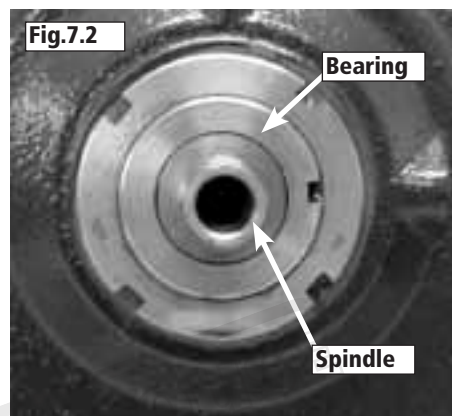
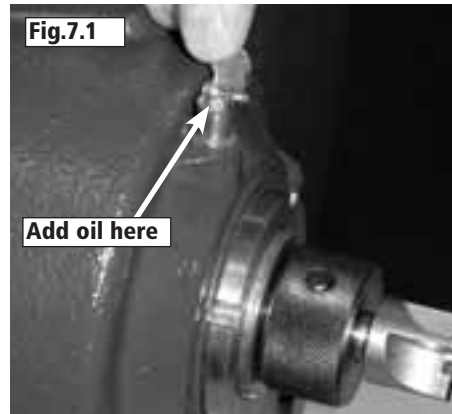
3. After "Running-In", only small amounts of oil should be added.

4. During normal running conditions there should be a thin film of oil visible on the end of the tapered part of the spindle which is evidence of correct distribution of the oil in the bearing. The best way to check this is to view the bearing 'square on' **Fig 7.2** on a correctly lubricated bearing a thin black line should be visible in between the bearing and the spindle.

5. If the amount of oil seeping out on to the front of the spindle is excessive, centrifugal force may throw the oil outwards. In order to rectify this, further "Running-In" may be required or simply applying less oil less frequently. If the correct amount of oil is being added and oil is still seeping out, the bearing may be too loose, see **section 10** for bronze bearing adjustment procedure. If a thin line around the bearing is not visible and the correct amount of oil is being added, the bearing may be too tight, please see **section 10** for details on how to adjust the bearing.

6. It is also normal for a certain amount of heat to be generated in the vicinity of the bearing, especially on high speeds. This is not detrimental, but extremely hot conditions should be investigated (lack of oil or bearing adjustment).

7. Once the pattern of bearing adjustment and lubrication is established for your particular needs, you will find the bearing is one of the smoothest running available - the prime requirement for good woodturning.



8. 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

Before 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 to 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

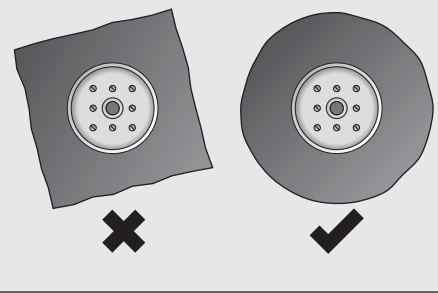


Fig.8.2



Fig.8.3



Fig.8.4

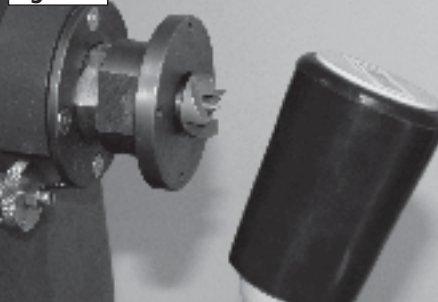


Fig.8.5



8. 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 45° 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

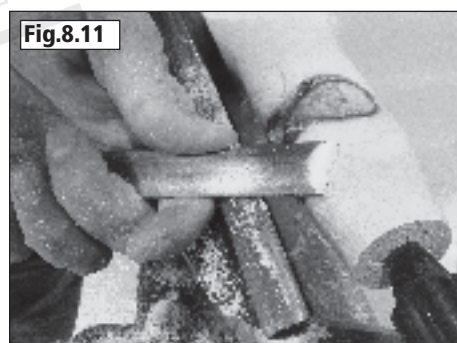
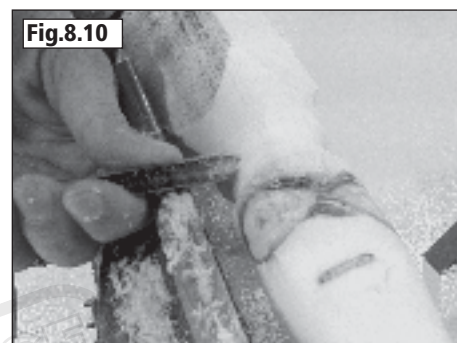
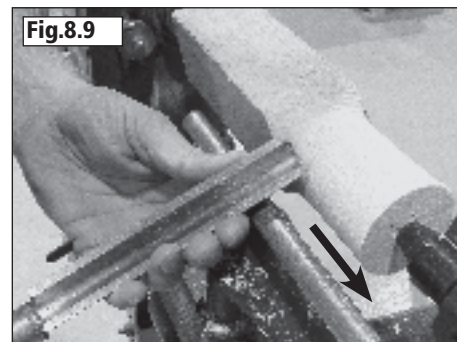
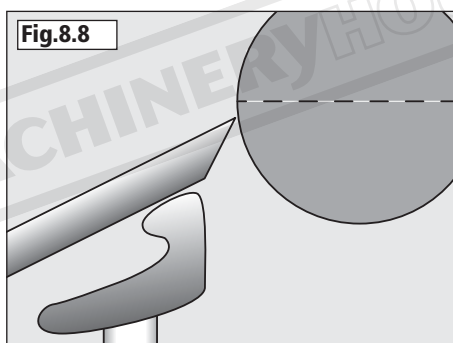
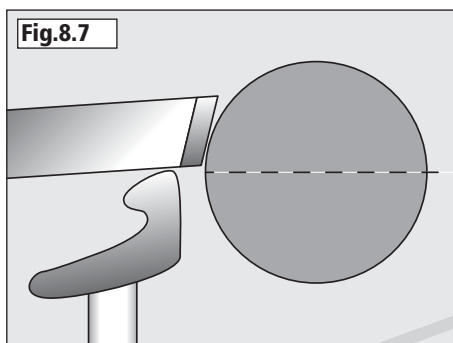
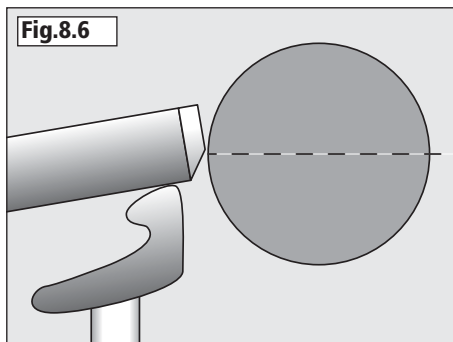
A spindle gouge is used to shape the final profile of a spindle and is capable of finer work than a roughing gouge. It is designed specifically for cutting coves or valleys. The blade should come into contact with the wood at just below the centre line. Resting it on the tool rest, apply the blade to 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 to 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.



Speeds of the Lathe

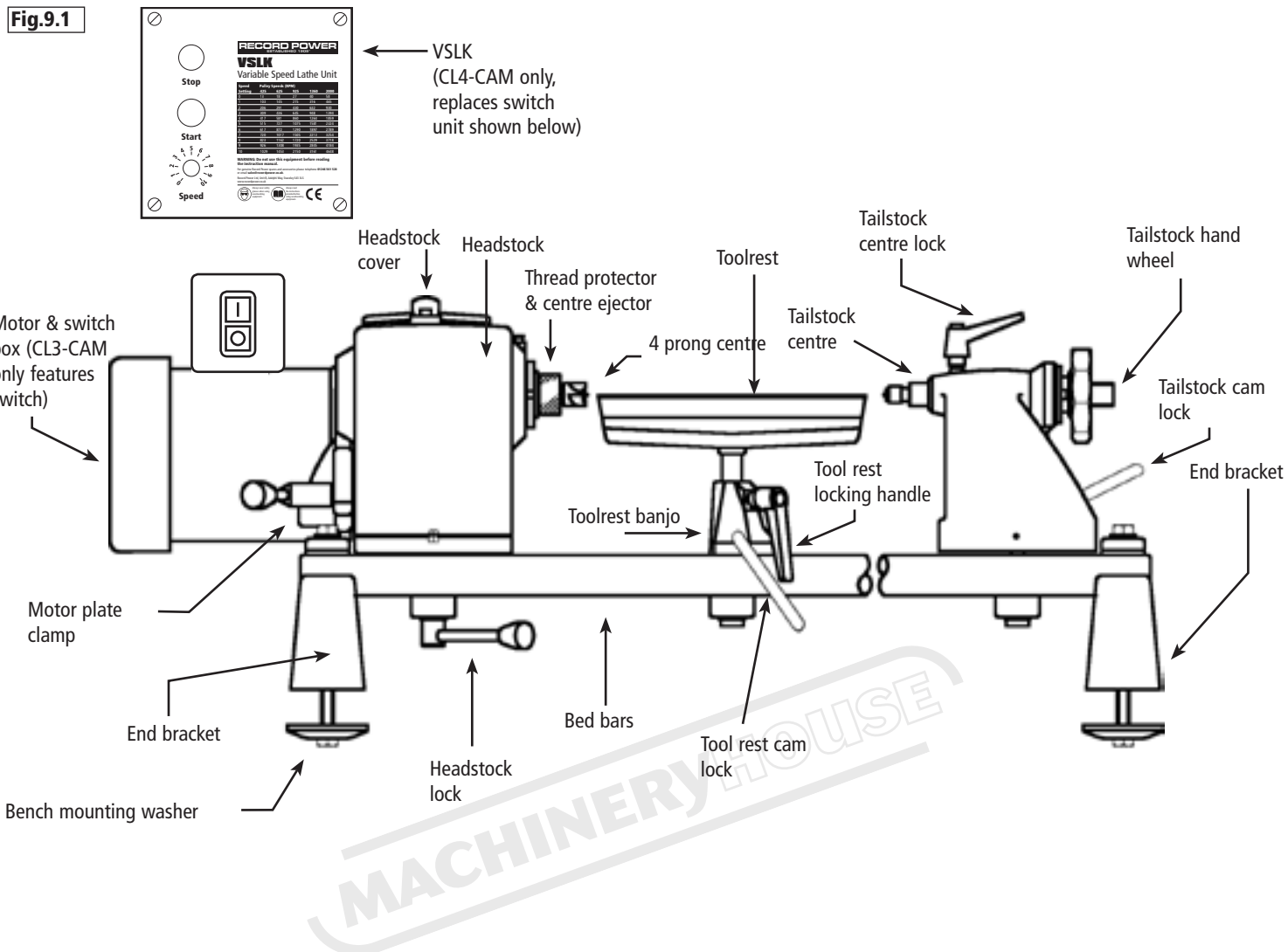
To ensure the safest possible use of the lathe, it is important to understand which speeds are suited to which tasks. In general, the slower speeds should be used for the initial turning and roughing out of large pieces and the slowest speed should be used when large pieces are out of balance. This will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

9. Control Identification & Function



CONTROL	FUNCTION	OPERATION / COMMENT
CL4-CAM Variable Speed Unit	Starts and stops motor and controls speed.	Green on, red off. Rotary control for speed selection.
CL3-CAM Switch Box	Starts and stops motor.	Green on, red off.
Tool rest	Supports turning tool.	Position as per lathe safety instructions.
4 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.
Headstock lock	Locks headstock to bed bars. Allows headstock to be rotated 90° for large faceplate turning. Spindle must be parallel to bed bars when spindle turning.	Turn handle clockwise to lock. Firmly lock before mounting work. Loosen and turn headstock to desired position; For bowls larger than 12" (max 30") the headstock must be rotated to 90° and used with optional bowl rest (part no. CL3B).
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 tensioned.	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.
Thread protector	Protects the spindle thread when using Morse taper accessories and acts as a centre ejector	Protection: Threads into spindle. Ejection: Hold belt or pulley and unscrew thread protector.

10. Lathe Operation



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

CL3-CAM Lathe

The CL3 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.

CL4-CAM Lathe

The CL4 lathe does not have a no volt release (NVR) switch, but the inverter drive unit incorporates low voltage and overload sensors.

The low voltage sensor will prevent automatic re-starting of the lathe 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'. In cases of severe overload, the overload sensor will cause the inverter to cut out negating the need to switch the machine OFF. 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. Ensure that the speed control is returned to its lowest setting before attempting to re-start the machine. Gradually increase the speed back to the required level before applying the turning tool.

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 the five different pulleys the speed can be varied from 425 to 2000 rpm on the CL3-CAM and 13 to 4648 rpm on the CL4-CAM.



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

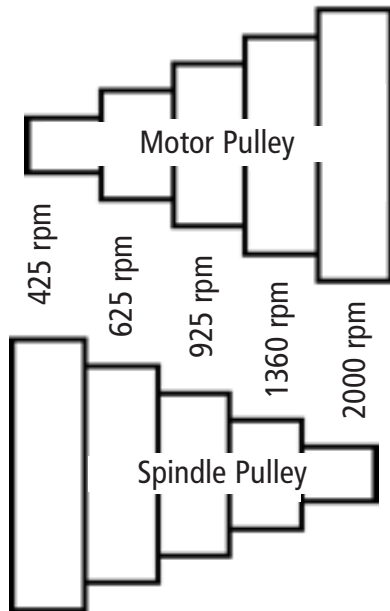
1. Ensure that the grub screws in the two pulleys are fully tightened. It is advisable that these should be checked periodically, (two grub screws per pulley). Remove outer grub screw before tightening fully the inner dog grub screw then re-place outer grub screw to lock in position (see **section 6**).
2. Adjustment of the tailstock along the lathe bed rails is obtained by releasing the **tail stock cam lock, Fig 9.1** 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 9.1**.
3. Adjustment of the toolrest base on the lathe bed rails is achieved by slackening the **tool rest cam lock Fig 9.1** and moving it to the desired position, then locking firmly.
4. Adjustment of the toolrest is obtained by releasing the **toolrest locking handle 9.1** and moving the toolrest to the desired position, then lock firmly using the **toolrest locking handle, Fig 9.1**.
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**.

10. Lathe Operation - cont.

SPEED SELECTION

The speeds shown below represent the CL3-CAM speeds and also the approximate CL4-CAM speeds when the speed dial is set to half speed and the belt is positioned on the pulleys as shown.



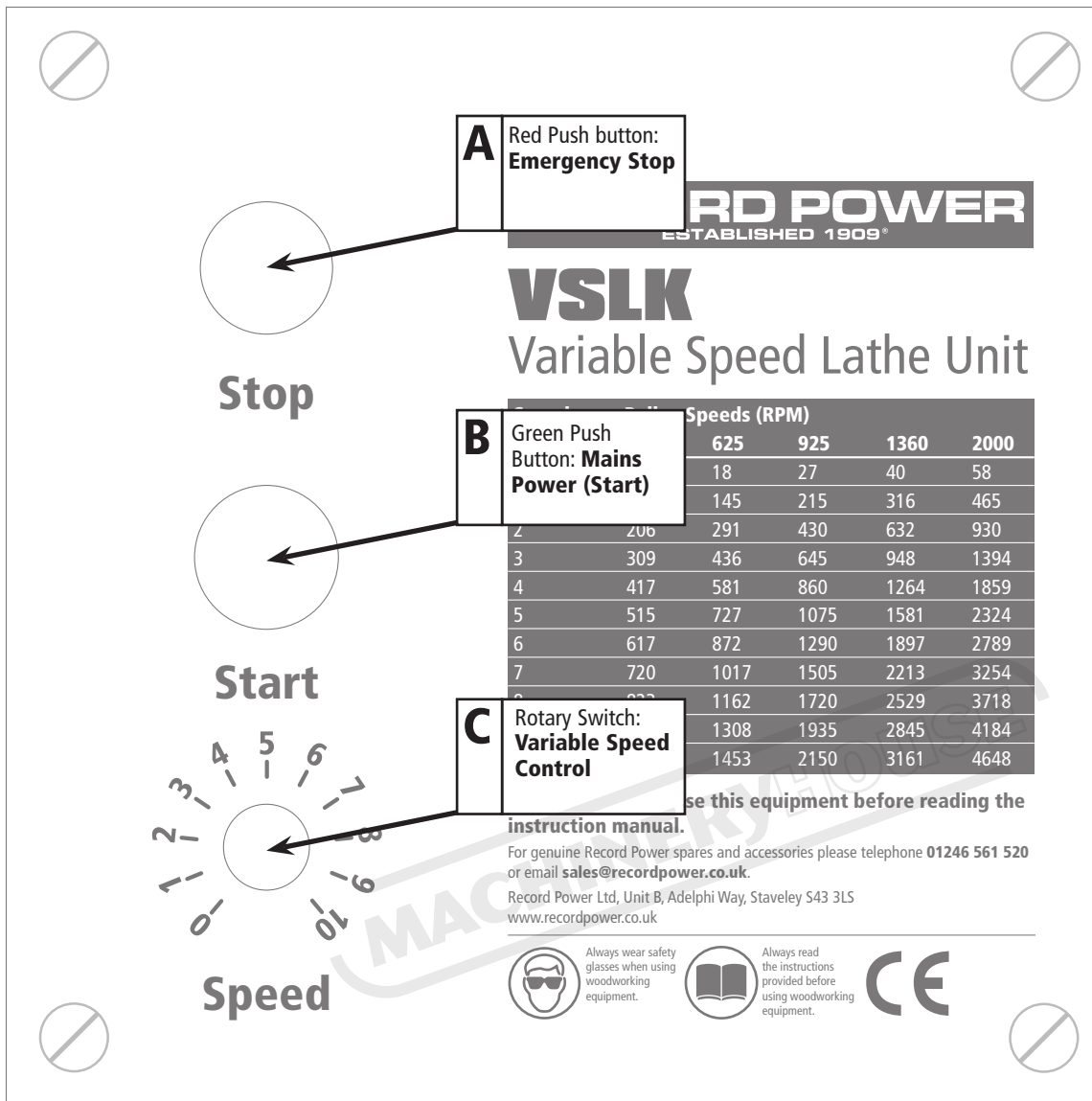
SPEED SELECTION (CL4-CAM ONLY)

Speed Setting	Pulley Steps				
	425	625	925	1360	2000
10	1029	1453	2150	3161	4648
9	926	1308	1935	2845	4184
8	823	1162	1720	2529	3718
7	720	1017	1505	2213	3254
6	617	872	1290	1897	2789
5	515	727	1075	1581	2324
4	417	581	860	1264	1859
3	309	436	645	948	1394
2	206	291	430	632	930
1	103	145	215	316	465
0	13	18	27	40	58

10. Lathe Operation - cont.

CONTROLS AND FUNCTIONS OF THE VARIABLE SPEED UNIT (CL4-CAM ONLY)

Fig.10.1



Please refer to **Fig.10.1** for control references.

1. To start the drive unit push button **B**.
2. To adjust the speed of the lathe, turn the variable speed control **C** to achieve the required speed. To increase the speed turn the control knob clockwise and to decrease the speed turn the knob anti-clockwise.



IMPORTANT: Before starting the machine with work mounted, always ensure that the speed control knob is set to the lowest speed setting and gradually increase the speed as the work piece becomes balanced and concentric.

3. To stop the machine or in case of emergency, push button **A**.



WARNING: As the lathe slows down after switching off, do not attempt to slow the lathe down by hand. This could lead to severe damage to the hands, through splinters, burning of the skin or even trapping of hands between workpiece and toolrest / bed bars. Marking of the workpiece or trapping could also occur if using a rag or cloth as a brake.



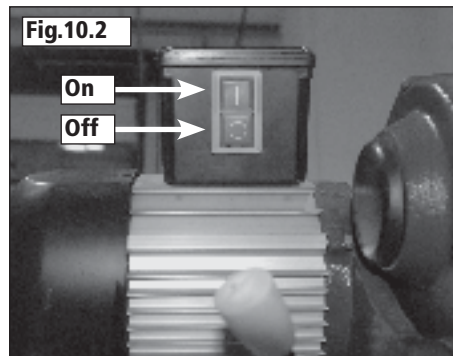
IMPORTANT: DO NOT run the variable speed unit below number 3 on the speed control dial for more than 30 minutes without providing extra cooling for the motor.

CAUTION: Even when the speed control dial is set to 0 the motor will still turn slowly in a jerky motion. This is a safety feature designed to indicate that the rotary switch **C** is on. DO NOT run the lathe at this setting (see note above).

10. Lathe Operation - cont.

CONTROLS AND FUNCTIONS OF THE CL3-CAM SWITCH BOX

The CL3-CAM switch box is located on the motor unit, attached to the head stock. To turn the CL3-CAM on, press the green switch marked 'I'. To stop the lathe, press the red switch marked 'O'. See **Fig 10.2**.



CHANGING THE BELT SPEED



1. Turn the lathe OFF and disconnect from power source.
2. Remove headstock cover. **Fig.10.3**.
3. Unlock motor plate using the tension lever. **Fig.10.7**.
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.10.5**. Turn the spindle by hand to ensure 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.10.6**.
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.

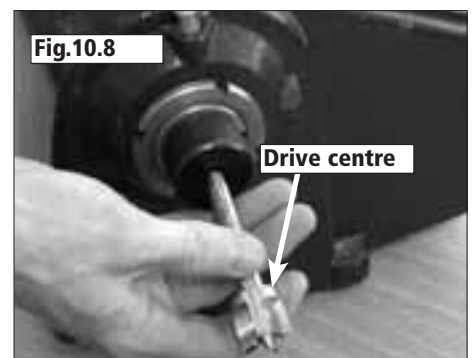
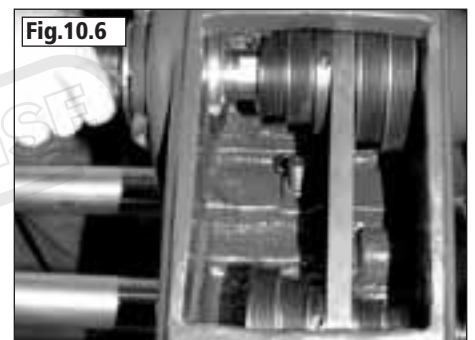
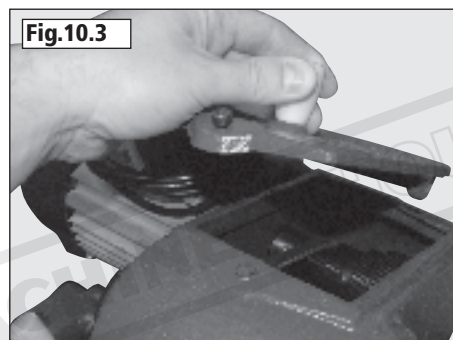


WARNING: Do not operate the lathe without the headstock cover locked in place. Loose items, clothing or hands may enter the opening and become entangled in rotating parts. Serious injury could occur.

CHANGING THE HEADSTOCK FITMENT

To change the headstock fitment:

1. Remove the headstock cover. **Fig.10.3**.
2. Hold the spindle inside of the headstock to stop it from turning, either by hand or with the spanner held on the wrench flat **Fig.10.7**.
3. Loosen the thread protector using the pry bar (item 18) if necessary.
4. The drive centre can then be removed **Fig.10.8**.



10. Lathe Operation - cont.

ADJUSTING THE BRONZE TAPER BEARING

The Tapered Bronze Bearing System fitted to CL3-CAM and CL4-CAM is one of the finest bearing systems available and a long established and well proven engineering solution. Take time to learn the correct maintenance and adjustment of this system and you will enjoy smooth running accuracy with high load bearing capacity for many years.

The bearing is visible as a brass coloured sleeve with tightening rings either side, **Fig 10.9**. It is made from phosphor bronze, specially formulated to resist wear providing that it is oiled correctly. If you dismantle the headstock you will find that the main shaft has a taper machined on the end, **Fig 10.10**, and the bronze bearing is tapered internally to match, **Fig 10.11**.

Fig 10.12 shows in cross section how these fit together, with the two tapers seating together, the bearing being held in place with the two locking rings. Adjustment is made by moving the bronze bearing along the spindle, i.e. tightening the two tapers up on each other.

If you suspect the bearing does need adjusting, screw on a faceplate to give extra leverage, and then feel for movement, **Fig 10.13**. If you detect the slightest amount of play the bearing has to be tightened.



Adjustments should be made when the lathe is up to operating temperature, if it hasn't been run this will take about 5 minutes running then disconnect the lathe from the power source and begin adjustment process.

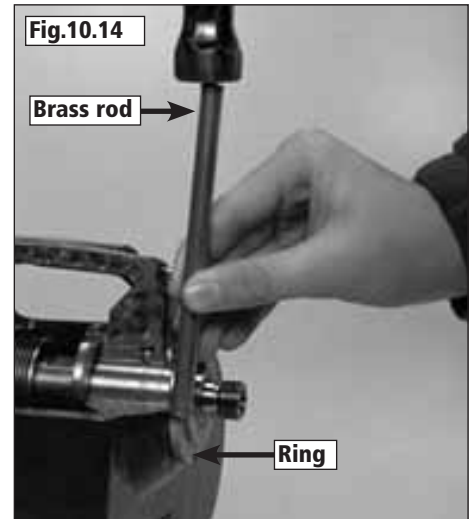
The spindle is fixed and the two tapers can only be brought closer together by moving the bronze bearing along the spindle. Slacken the ring at the front of the headstock, **Fig 10.14**, by knocking it gently round anti clockwise using the Brass Rod provided, **Fig 10.15**.

Now tighten the inner ring by turning it the same way, **Fig 10.16**, to pull the sleeve along and tighten up to the spindle taper. The adjustment required is very small so do not move the rings more than a fraction of a turn at a time. Keep doing this until the play is removed. If you overdo it the bearing will lock up tight – if this happens release the inner ring very slightly and tighten the outer ring.

Please note: The grub screw on the back of the headstock is to prevent the bearing turning, Fig 9.19, and has nothing to do with the function of the bearing adjustment. DO NOT adjust this screw.

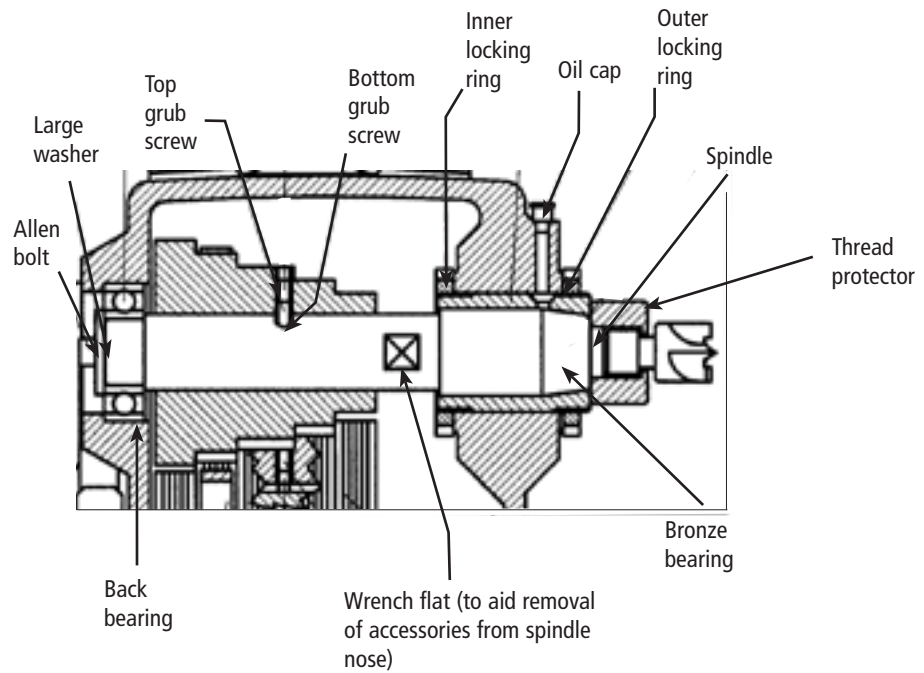
BEARING LUBRICATION

Do not allow the bearing to dry out between lubrications. Over-lubrication may result in oil being thrown out and on to the workpiece or lathe. Lubricate before each use. For optimum performance we recommend the use of Record Power spindle oil – RPSO-100. If not available use automotive grade 30W oil. For further information on this procedure see **section 7** of the manual.



11. Maintenance

Fig. 11.0
Cross Section of Spindle & Bearing Assembly



CAUTION!



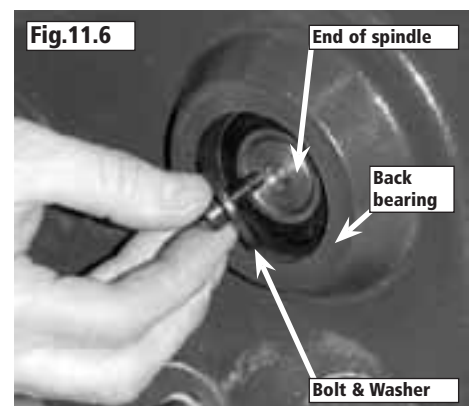
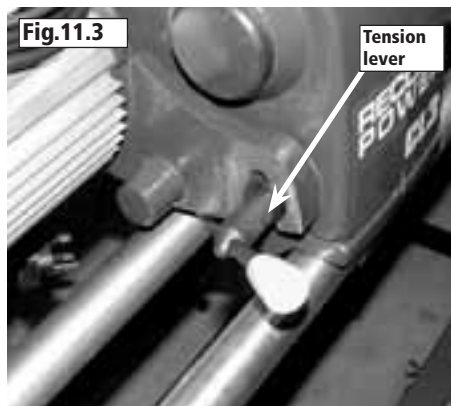
Before carrying out any adjustments or maintenance ensure that the machine is isolated and disconnected from the electricity supply.

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 & BEARING

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 belt cover plate **Fig. 11.1** and **thread protector Fig. 11.2**.
 2. Release belt tension lever **Fig. 11.3**.
 3. Supporting the motor with one hand Remove the drive belt from the spindle pulley **Fig. 11.4**.
 4. Remove the rubber seal from the end of the headstock revealing one end of the spindle **Fig. 11.5**.
 5. Unscrew the Allen bolt and remove this with the washer from the end of the spindle **Fig. 11.6**.
- Note:** If only changing the drive belt step 6. is not necessary. Proceed straight to step 7.
6. Remove the top grub screw from the spindle pulley. Unscrew the bottom dog grub screw a few turns so that the pulley will slide freely



11. Maintenance - cont.

along the full length of the spindle inside the headstock. **Fig. 11.7.**

7. Unscrew the inner locking ring from the bronze bearing inside the headstock. To loosen this ring place the brass rod into one of the notches around the locking ring and tap with a mallet **Fig. 11.8.** The locking ring should be turned anti-clockwise to unscrew. Once loose, rotate and remove this locking ring by hand so it rests loosely on the spindle.

8. Loosen but don't remove the outer locking ring **Fig. 11.9**, this again may require a few taps with the mallet and brass rod.

9. Taking the brass rod and a mallet drive the spindle and bearing assembly through the headstock **Fig. 11.10.**

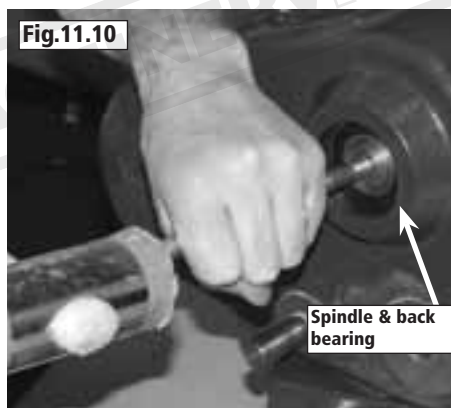
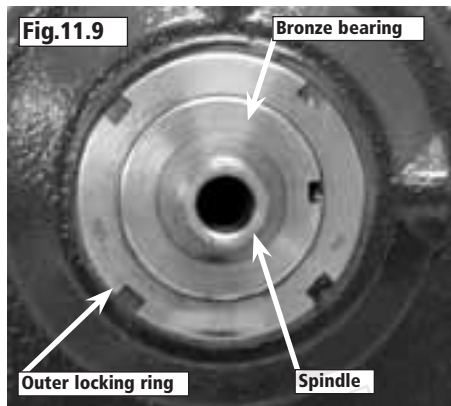
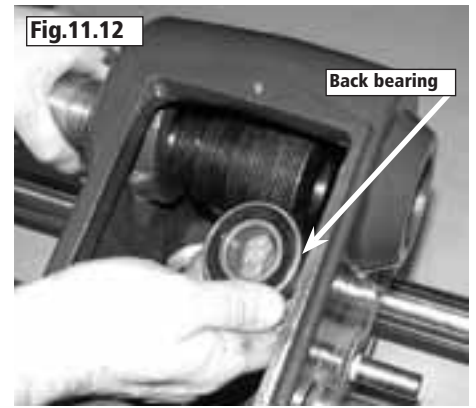
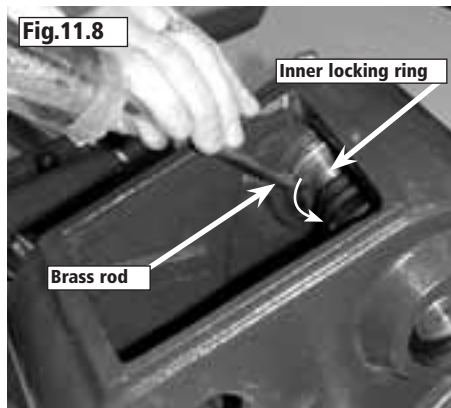
10. The spindle and bronze bearing should appear from the main headstock casting, **Fig. 11.11.**

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 replace the thread protector and proceed to step 18.

11. Firmly grip the spindle and bearing which has appeared from the headstock casting and pull this through further by hand until the back bearing can be retrieved from the spindle. This back bearing should now be removed, **Fig. 11.12.**

12. Continue to slide the spindle and bearing from the headstock and remove the pulley, **Fig. 11.13.**

13. The inner locking ring can now be removed from the spindle **Fig. 11.14.**



11. Maintenance - cont.

14. The new spindle & bearing can now be fitted, ensure that the outer locking ring (still fitted to the old bearing) is transferred to the new bearing. **Fig. 11.15.**

15. Screw the thread protector back on to the spindle. It is now ready to be fitted in the headstock **Fig. 11.16.**

16. Introduce the spindle and bearing back into the headstock. Ensure that the drilled holes are uppermost as the bearing is pushed into place. Hook the inner locking ring and the drive belt onto the spindle **Fig. 11.17.**

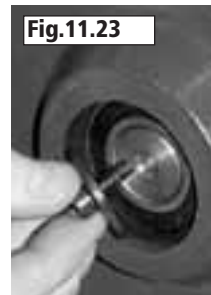
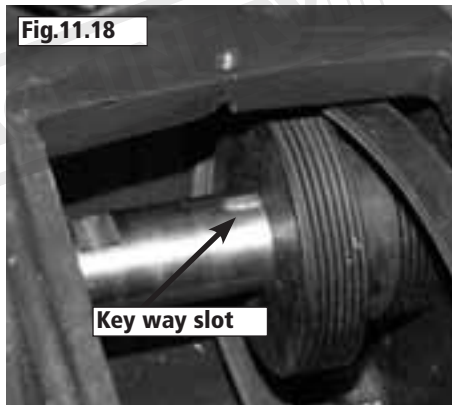
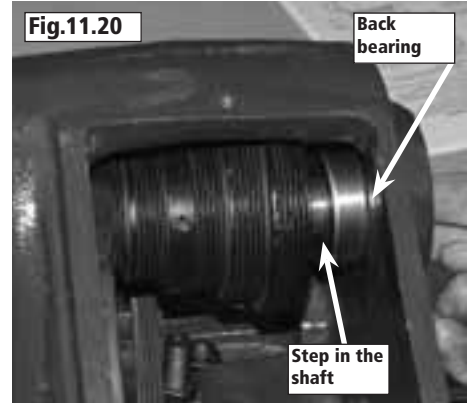
17. Now slide the pulley on to the spindle ensuring that the grub screw is aligned with the key way (slot) on the spindle **Fig. 11.18** and **Fig. 11.19.**

18. Place the back bearing on the end of the spindle up against the step in the shaft. Once fitted this back bearing should be offered up to the fitting area in the back of the headstock ready to be re-seated. **Fig. 11.20.**



19. Holding the spindle and bearing assembly in place, tap the thread protector with a soft faced or plastic faced mallet, knocking the whole assembly back into the headstock **Fig. 11.21.**

20. 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. This ensures that the back bearing seats correctly in the rear of the headstock. You will feel the back bearing seat against the headstock and there will be a dull thud as the mallet strikes the thread protector. This stage is now complete **Fig. 11.22.**

21. Replace the Allen bolt and large washer into



TIP The pulleys lock onto the shafts using two grub screws.

A	A knurled base grub screw which locates into the dog grub screw.		
B	Then the dog grub screw locates into the groove on the shaft.		

11. Maintenance - cont.

the back of the headstock. Do not over tighten this, the bolt should only be turned until finger tight **Fig. 11.23**, then apply a 1/4 of a turn with an Allen key **Fig. 11.24**.

22. The belt should now be placed on the pulley and inner locking ring tightened. Once the locking ring is tightened by hand use the notches to lever the ring round and fully tighten it. **Fig. 11.25**. This will pull the bronze bearing in place on the spindle.

23. Position the spindle pulley so as to line up with the motor pulley **Fig. 11.26**. Tighten the spindle pulley bottom grub screw ensuring that it locates on the spindle flat, then replace the locking grub screw. **Fig. 11.27**.

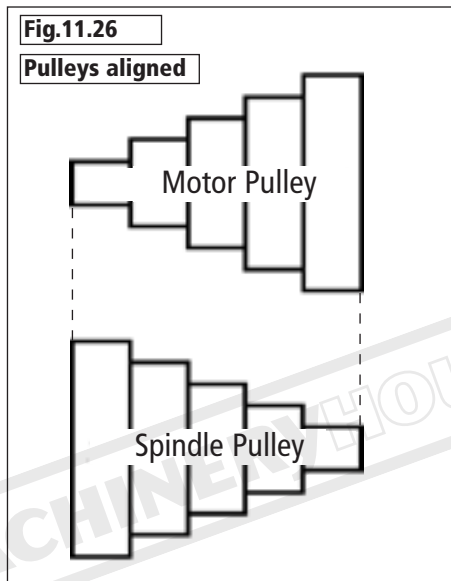
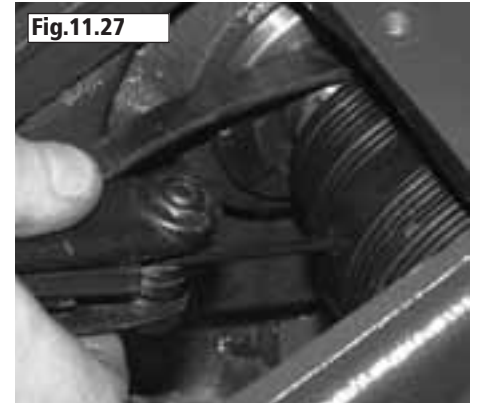
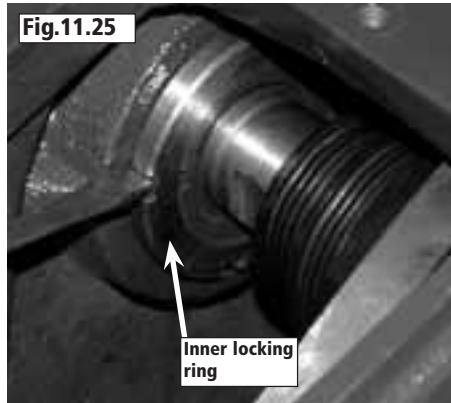
24. Finally tighten the outer locking ring, by placing the brass drift in one of the notches and tapping it with a mallet **Fig. 11.28**. The procedure is now complete.

25. 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.

Note: The bearing may need to be adjusted - see **section 10**.

Note: If a new bearing has been fitted this will need running in - see **section 7**.

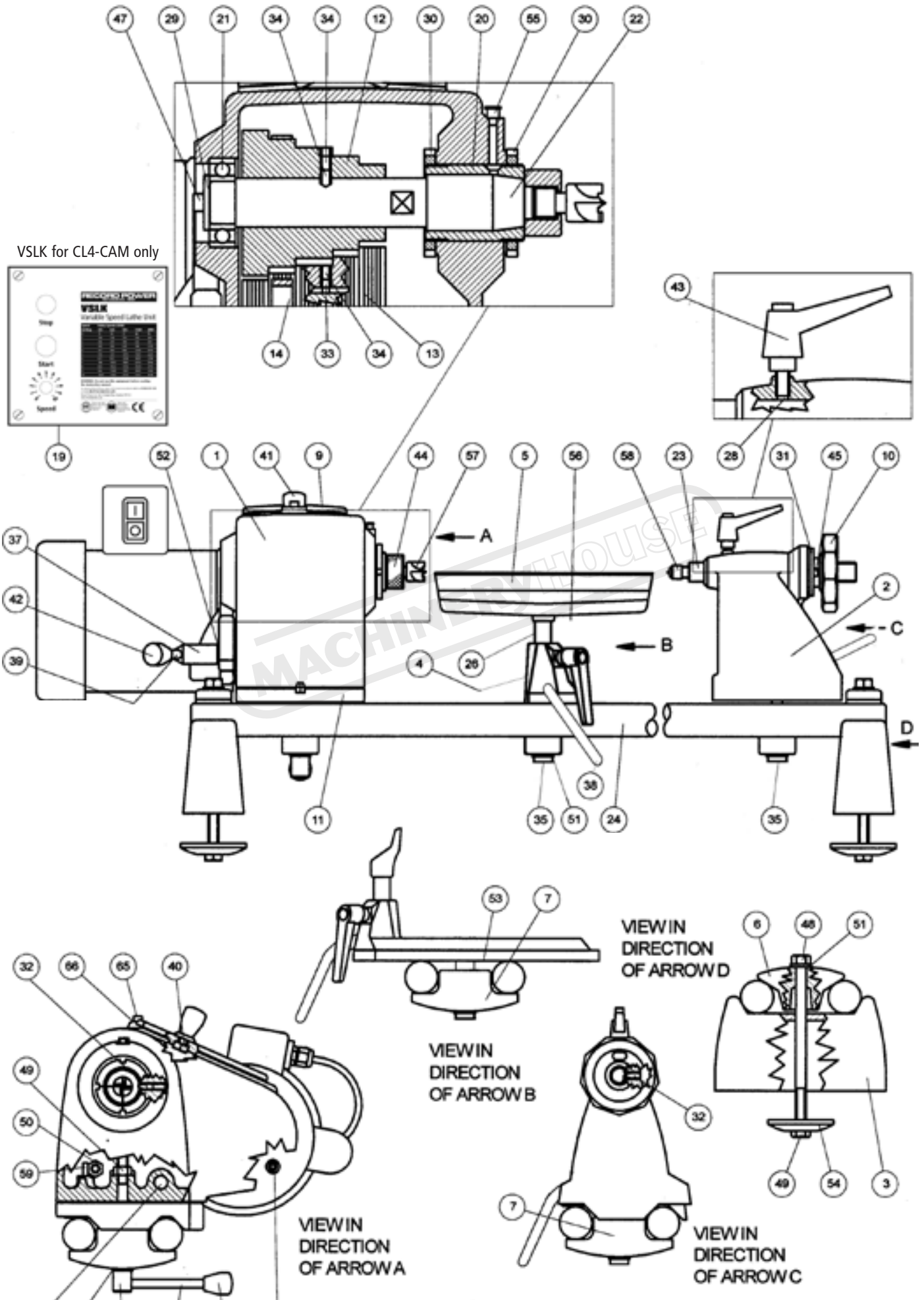
Check final adjustment of the bronze bearing (after running it in if new) and adjust as necessary following instructions in **section 10**.



12. 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.	
	Headstock bearing wrongly adjusted preventing spindle from turning.	Check the bearing for free movement and adjust as necessary.	
	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.	
	Bronze bearing has run dry.	Check that the bearing is well lubricated and apply oil 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.
Bronze bearing wrongly adjusted (too loose)		Check and adjust the bearing as necessary.	
Incorrect pulley alignment.		Check and adjust pulleys as described in section 6 .	
Rear bearing faulty.		Check the bearing 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 .		

13. Spare Part Identification



13. Spare Part Identification - cont.

ITEM No.	PART No.	DESCRIPTION	QTY
1	BOHZ	Headstock	1
2	ZJB-CAM	Tailstock	1
3	ZIC	End bracket	2
4	BOBJ-CAM	Banjo	1
5	ZCF	CLO/J 10" Tool rest	1
6	ZIF	End bracket clamp	2
7	ZIW	Tool rest base clamp	3
9	BOLZ	Headstock cover	1
10	ZJE	Tailstock Handwheel	1
11	ZJF	Headstock base	1
12	ZJH	Spindle pulley - 5 Speed	1
13	ZJI	Motor pulley – 5 Speed	1
14	ZJJ	CL3/I Belt – 5 rib	1
19	VSLK	Invertor / motor / motor plate	1
20	ZJR	Bearing – bronze	1
21	ZACG	Bearing – 6205ZZ	1
22	ZJT	Main spindle	1
23	ZJL	Tailstock barrel	1
24	ZJK	Bed rail – chrome (57.25") for 36" lathes	2
26	BOTS	Post – tool rest	1
27	ZJM	Pin – motor plate pivot	1
28	ZJY	Brass pad	1
29	ZACL	Washer – spindle end	1
30	ZJS	Locking ring	2
31	ZJO	C-washer	1
32	ZJU	Nib	2
33	ZABR	M6 x 10mm Dog point socket screw	1
34	ZABL	M6 x 8mm Socket screw	3
35	ZABM-C	Nyloc Nut	2
36	BOSS	Screw – clamping for headstock	1
37	ZIV	Screw – clamping for motor plate	1
39	ZIL	Handle – short	1
40	ZADV	Screw for cover knob	1
41	CLKJ	Cover knob	1
42	CLKI	Plastic knob	4
43	CLRC	M8 Ratchet handle	1
44	ZBU	CWA170 Thread protector	1
45	BOSW	M5 x 15mm Socket head cap screw	2
46	ZACH	M6 x 25mm Socket head cap screw	4
47	ZABK	M6 x 18mm Socket head cap screw	1
48	ZABX	M12 x 220mm Clamp bolt	2
49	ZABM	Nut – 12 mm	6
50	ZABN	Nut – 10 mm	1
51	ZABO	Washer – 12 mm	7
52	ZABP	Washer – 10 mm	1
54	ZED	Washer – cast	2
55	ZACK	Oiler	1
56	CLRA	M10 Ratchet handle	1
57	ZBZ	CWA80 7/8" 4 Prong spur centre	1
58	ZBY	CWA90 Ring centre	1
59	ZACM	Pin - nut retaining	1
60	ZACJ	3mm Hexagonal wrench #	1
61	ZACI	Wrench – spindle #	1
62	ZCA	Pry bar #	1
63	ZJV	Brass rod #	1
65	BOSG	Screw – headstock cover	1
66	BOBQ	Screw – retainer	1
71	ZADA	5mm Hexagonal wrench #	1

#: 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 (L3)
- 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'.

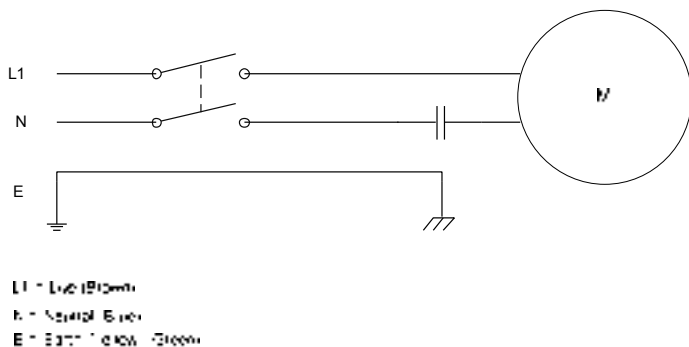
The wire coloured grey must always be connected to the terminal marked 'L3'.

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

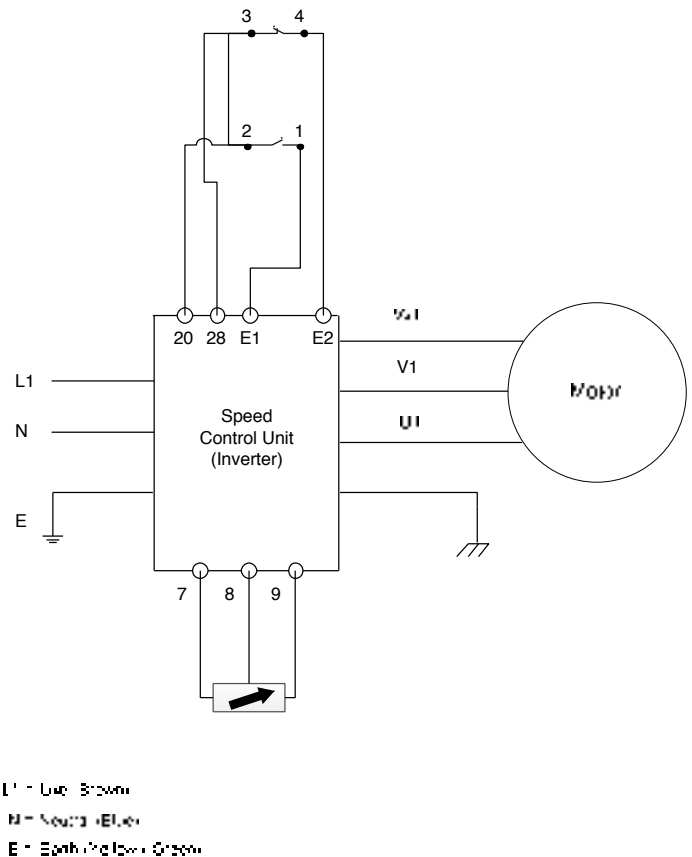
The wire coloured green and yellow must always be connected to the terminal marked 'E' or with the earth symbol

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

CL3-CAM Wiring Diagram



CL4-CAM Wiring Diagram



15. Contents of the CL3/B Package

- 1 End turning bracket
- 2 Swivel bracket
- 3 Tubular bowl rest
- 4 Banjo
- 5 End turning banjo clamping screw
- 6 Swivel bracket clamping screw
- 7 End turning bracket securing screw
- 8 Swivel bracket secondary screw
- 9 Ratchet handle for tool rest (banjo)
- 10 Allen key



16. Assembly of the CL3/B

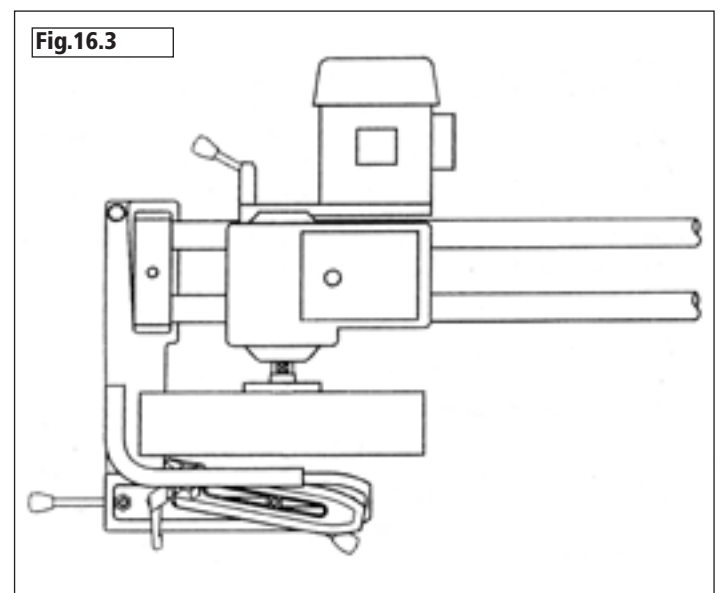
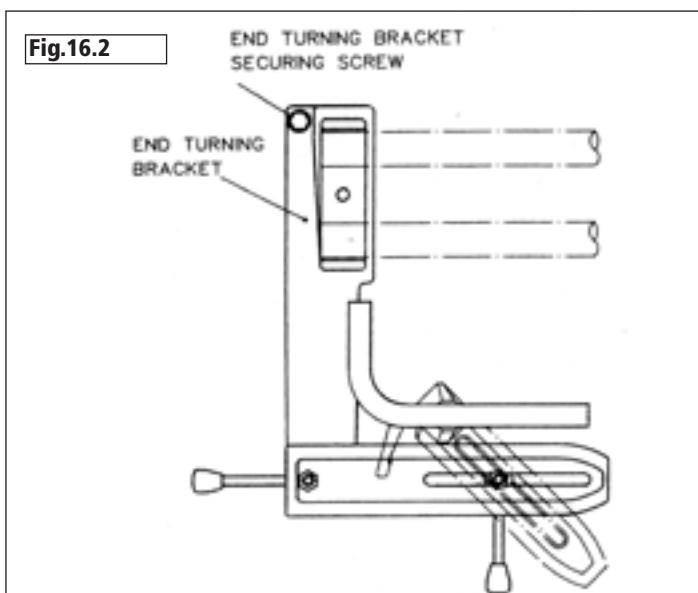
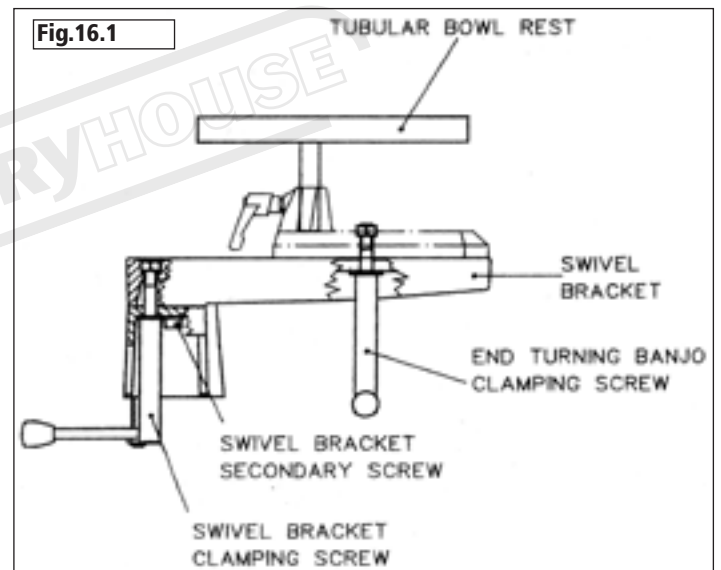
Please note: The end turning bracket supplied as part of the CL3/B replaces the end bracket supplied with the lathe, at the head stock end.

Fitting The Bracket To The Lathe

To assemble the unit, simply remove the end bracket at the headstock end of the machine and fix the end turning bracket in its place. Then assemble the swivel bracket as shown in **Fig 16.1** & **Fig 16.2**. This unit can be left on the machine when turning between centres etc.

Positioning & Adjustment

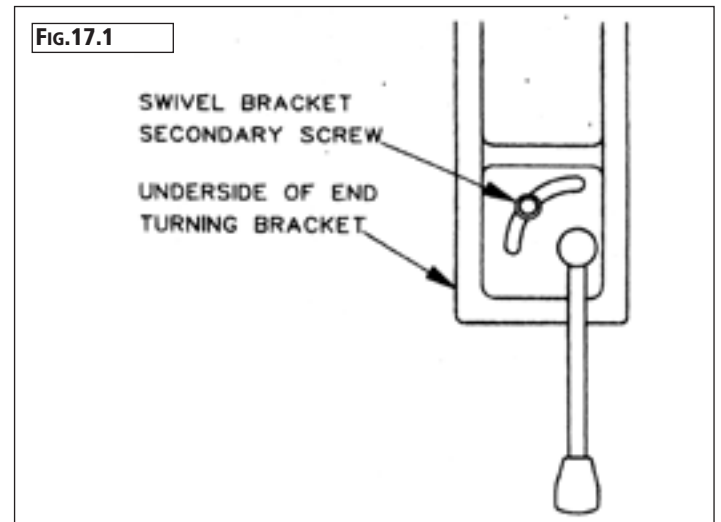
The most comfortable position for turning a particular workpiece can be obtained not only by adjusting the various components of the end turning unit but also by swivelling the headstock to the optimum angle and by adjusting its position along the bed bars. See **Fig 16.3** for a typical arrangement of the bowl rest.



17. Use & Application of the CL3/B

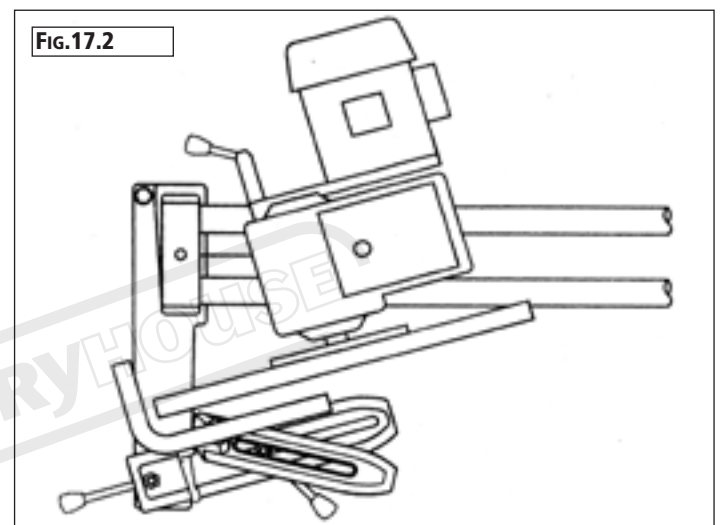
Normal Duty work

For normal duty work the swivel bracket clamping screw is sufficient to secure the swivel bracket in position but if movement is anticipated then the swivel bracket secondary screw should also be tightened, **Fig 17.1**.

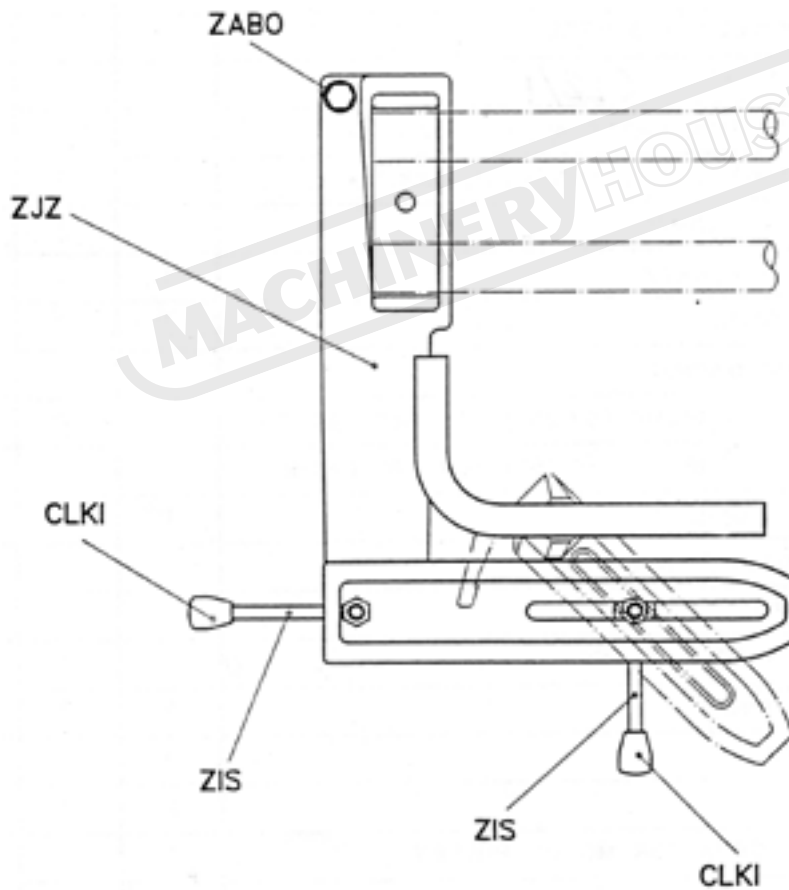
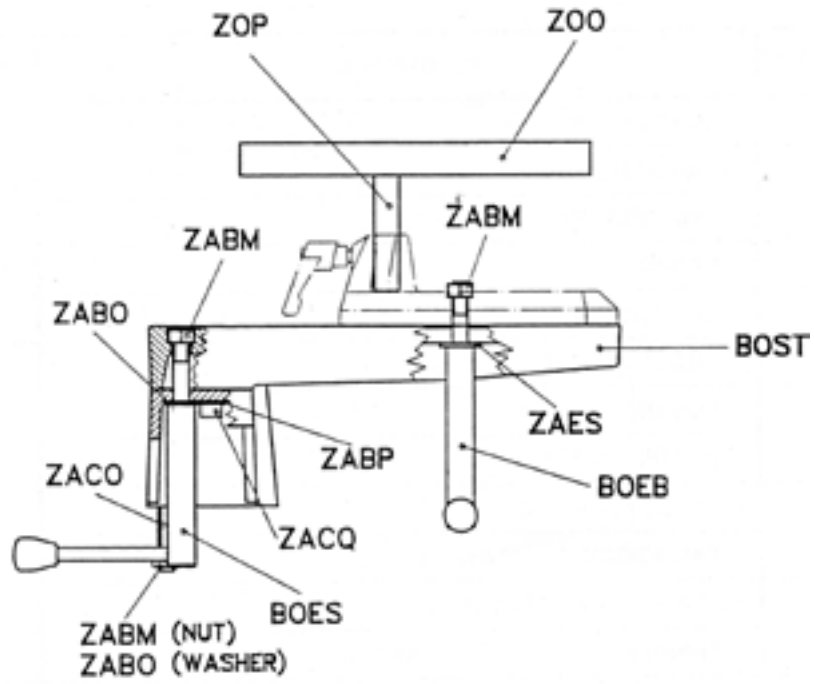


Thin work

For thin work the headstock can be swivelled to give maximum clearance for the turning tool handle, **Fig 17.2**.



18. CL3/B Parts List & Diagrams

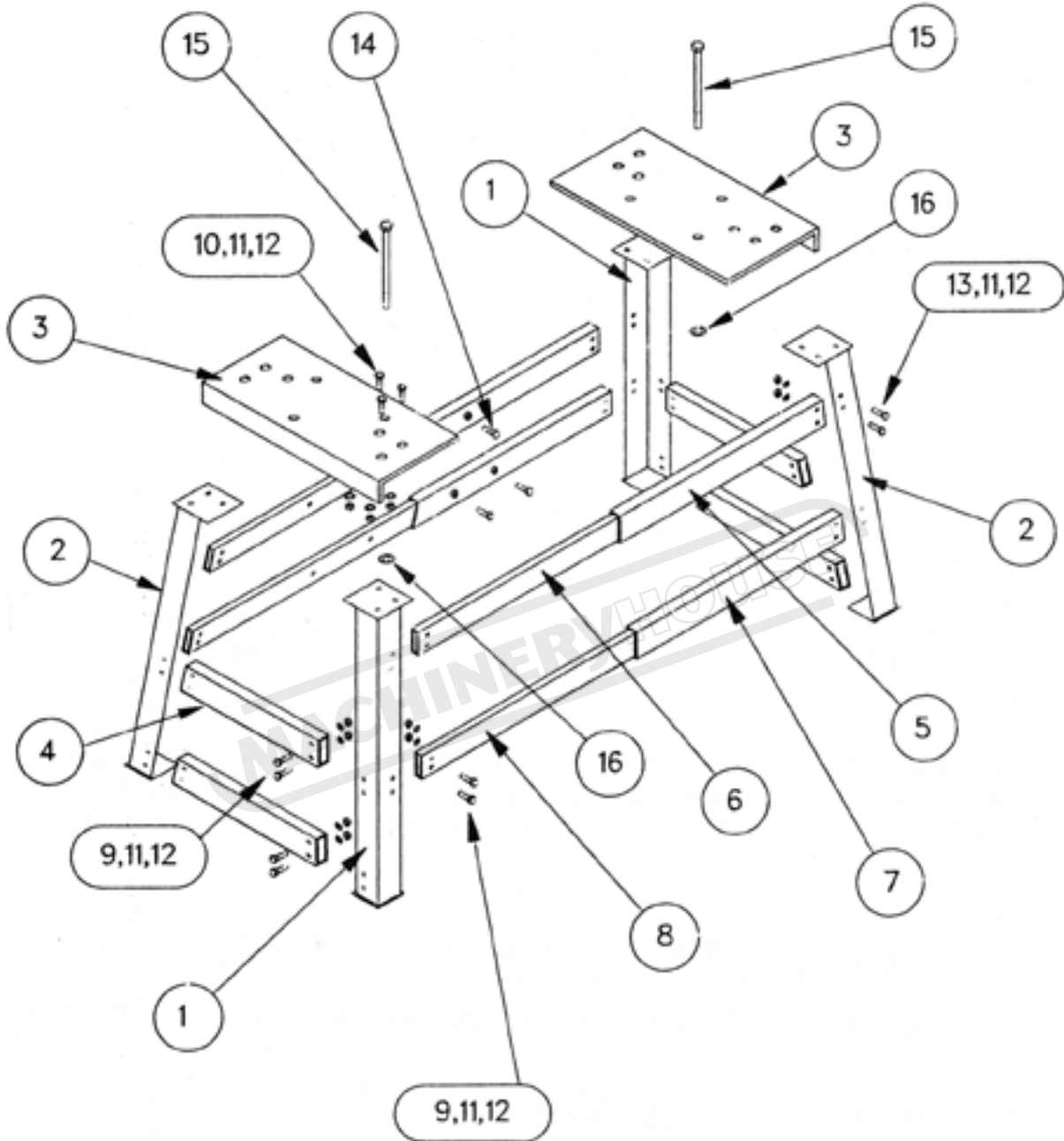


Part Number	Description	Quantity	Part Number	Description	Quantity
ZJZ	End Turning Bracket	1	ZOO	Tube For Tubular Bowl Rest	1
BOST	Swivel Bracket	1	ZABM	Nut - M12	3
BOEB	Clamping Screw For Banjo	1	ZABO	Washer - M12	3
BOES	Clamping Screw For Swivel Bracket	1	ZAES	Washer - Large	1
CLK1	Plastic Knob	2	ZABP	Washer - M10	1
ZIS	Handle - Long	2	ZACO	Screw - M12 x 65mm	1
ZOP	Stem For Tubular Bowl Rest	1	ZACQ	Screw - M10 x 30mm	1

19. Contents of the RPLB24-48 Package

Remove bench parts from packaging and lay out in a clean, uncluttered area. Check contents against parts list and diagram, **Fig 19.1**, then follow assembly instructions.

Fig.19.1



Ref No	Part No	Description	Quantity	Ref No	Part No	Description	Quantity
1	CDLT	Fabricated steel leg (front LH)	2	10	ZADB	M8 x 20 Hex setscrew	12
2	CDOT	Fabricated steel leg (front RH)	2	11	ZACB	M8 Hex nut	44
3	CDMP	Top plate	2	12	ZADD	M8 Plain washer	44
4	CDEM	End rail (51 x 25 x 355 mm)	2	13	BQST	M8 x 55 Hex Setscrew	8
5	CDFU	Upper side rail (57 x 40 x 978 mm)	2	14	ZAEN	M10 x 50 Hex Setscrew	8
6	CDMU	Upper side rail (51 x 32 x 1074 mm)	2	15	CDHB	M12 x 175 Hex Bolt	2
7	CDFS	Lower side rail (63 x 25 x 40 1023 mm)	2	16	ZABO	M12 Plain washer	2
8	CDMS	Lower side rail (51 x 32 x 1124 mm)	2	17		End rail (2 x 1 16 3/4")	2
9	ZAFE	M8 x 45 Hex set screw	24				

20. RPLB24-48 Specifications

The RPLB 24-48 Lathe bench can be adjusted to suit the CL3-CAM and CL4-CAM Record Power lathes. It is also possible to fit the DML36SH-CAM Record Power lathe, providing alternative holes are drilled. Other lathes may be accommodated by drilling extra holes in the side rails or by mounting a wooden top with suitable holes for bolting the lathe down.

Length (36" Lathe)	1664 mm
Width	547 mm
Height	800 mm
Weight	45 kg

21. RPLB24-48 Assembly

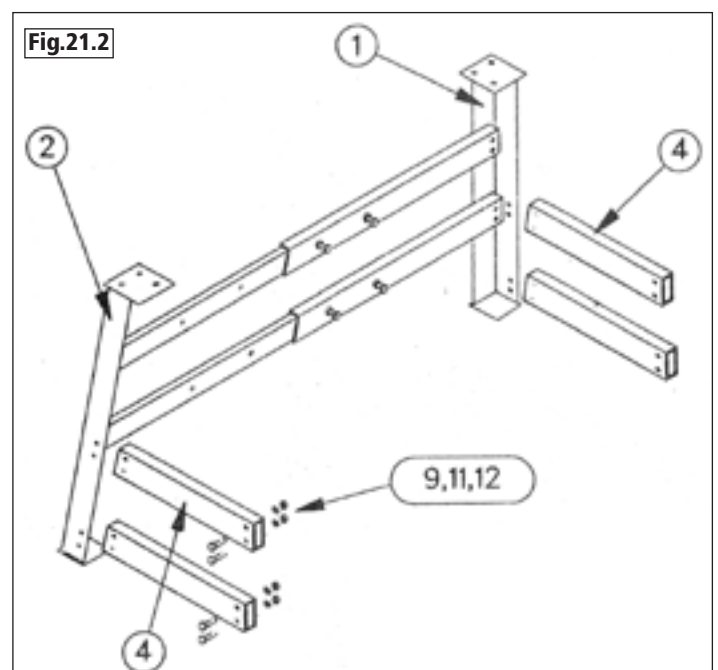
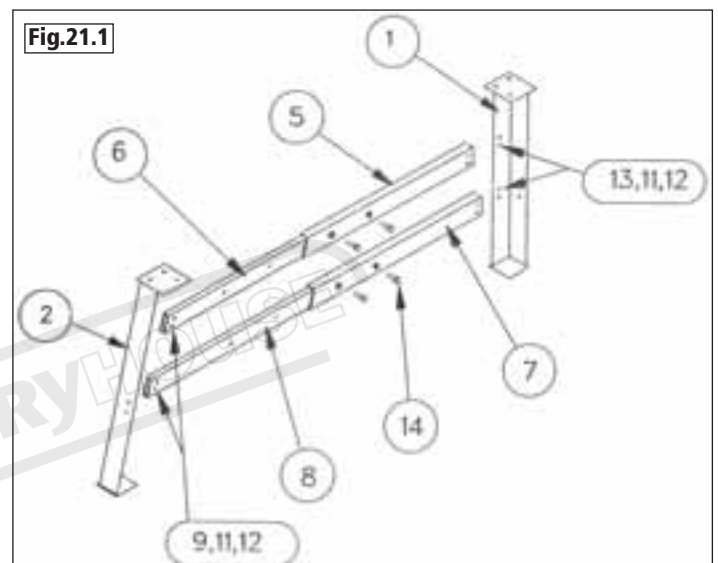


IMPORTANT: Unless otherwise instructed, do not fully tighten any of the fixing bolts until all of the assembly instructions have been completed.

Before assembling the lathe stand, take time to correctly identify the upper and lower side rails. They have differing lengths and can only be used in the intended positions. The lathe stand cannot be assembled successfully if the wrong size rails are used in the wrong places. Please see section 19 for full details of sizes.

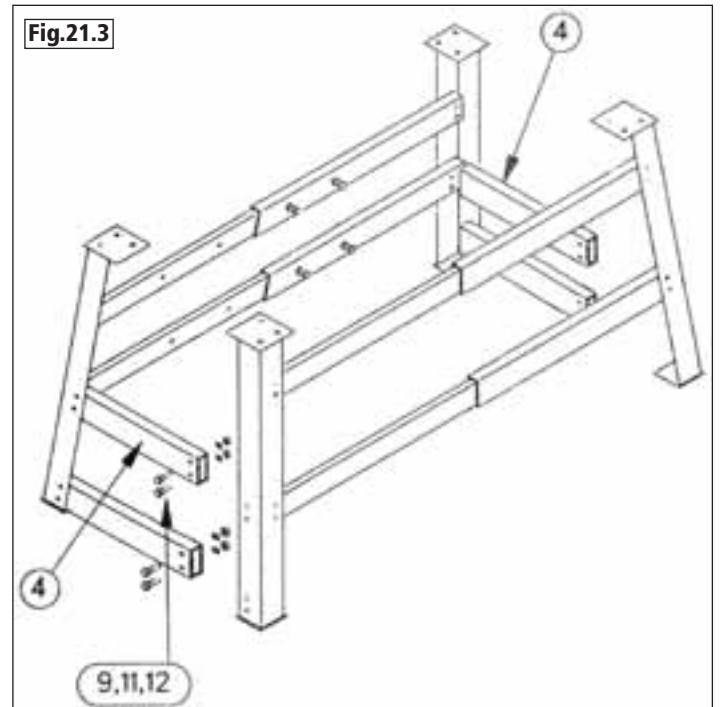
1. Assemble upper side rail (6) into (5) and lining up the relevant holes to suit the required lathe length (36"). Screw (14) 2 off into the nuts on (5) and locate into the holes in (6). Fully tighten.
2. Assemble the lower side rails in the same way. Slide (8) into (7) and locate bolts (14) through the nuts on (7) and into the relevant holes in (8). Fully tighten.
3. Bolt the ends of rails (5 and 7) to the leg (1) using fastenings (13, 11 and 12). Please note: all nuts and washers should be on the inside of the bench.
4. Bolt the ends of rails (6 and 8) to leg (2) using fastenings (9, 11 and 12).
5. Repeat for the remainder of the rails (5, 6, 7 and 8). Then legs (1 and 2). You now have 2 leg sub-assemblies.

6. Assemble the end rails (4 and 17) to the legs (1 and 2) with fasteners (9, 11 and 12). Ensure that the widest bolt hole centres in the end rail are nearest the bottom of the rail.



21. RPLB24-48 Assembly - cont.

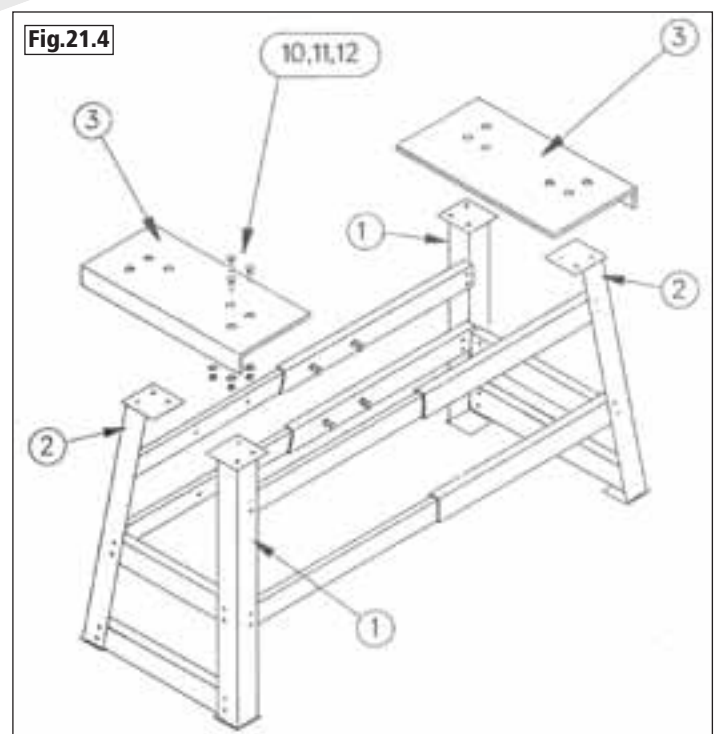
7. Assemble the second leg sub-assembly to the end rails (**4** and **17**) using fasteners (**9**, **11** and **12**).



8. Attach the two top plates (**3**) onto the legs (**1** and **2**) using the fasteners (**10**, **11** and **12**) in the corresponding holes in the leg tops.

9. Finally, fully tighten all nuts and bolts.

10. If the bench needs to be lengthened or shortened to suit a different Record Power lathe, this can be done by unscrewing the 8 M10 bolts (**14**), extending or retracting the bench, re-aligning the bolts (**14**) with the required holes in the inside rail and then fully re-tighten.



22. Fitting a Lathe to the RPLB24-48

Fitting a CL Series Lathe to the Bench



IMPORTANT: Ensure that the lathe is firmly fixed to the bench before use. If heavy duty turning is intended, the bench should be bolted to the floor by means of the holes in the bench feet. Use M10 or 3/8" dia. bolts.

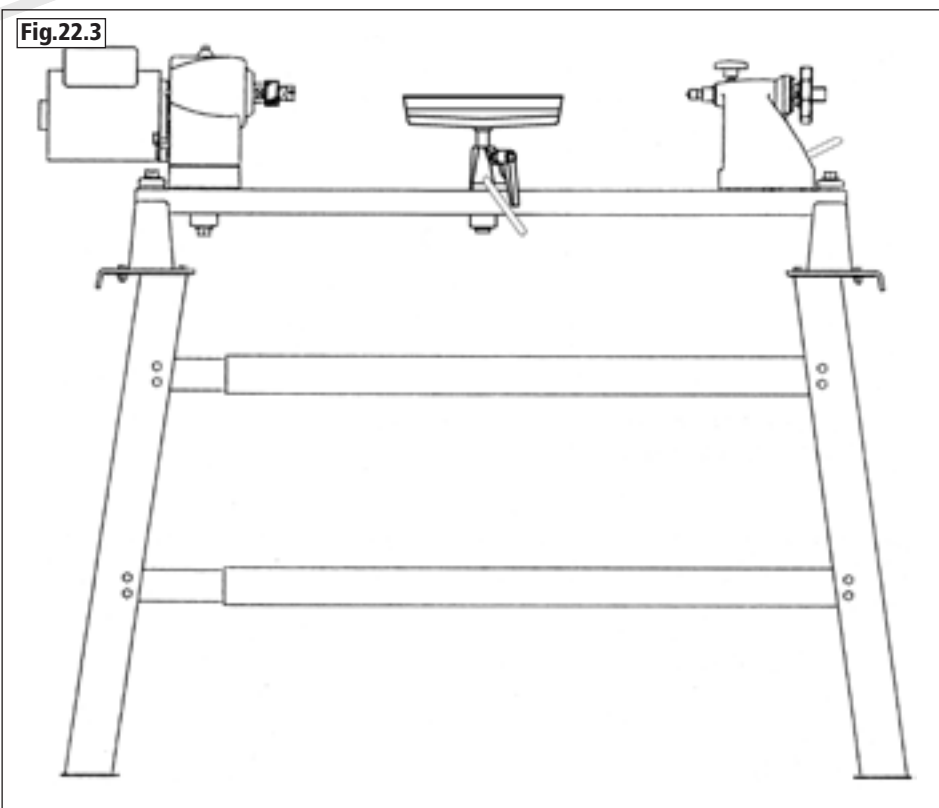
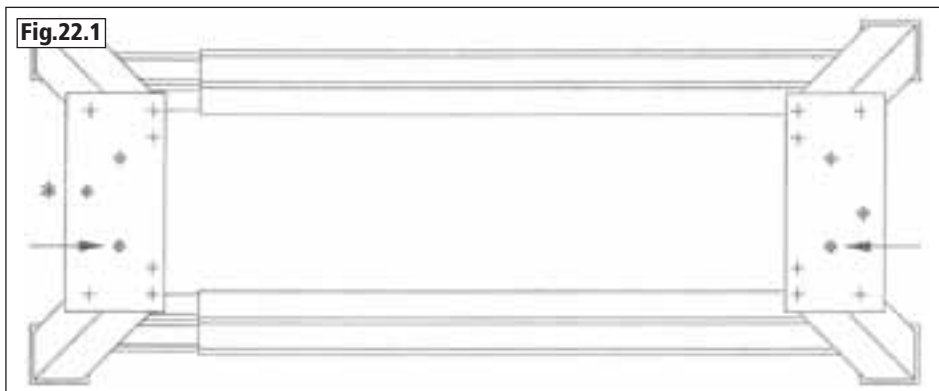
1. Ensure that the bench is assembled with nuts and bolts fully tightened before fitting the lathe.
2. Bolts (15) and washers (16) are used to fit the lathe to the bench in place of the bolts and cast washers supplied with the lathe which are not suitable.
3. For the CL3-CAM and CL4-CAM lathes use the holes in the top plates to bolt the lathe to the bench as indicated, **Fig 22.1**.
4. The hole marked with a star, **Fig 22.1**, is provided for fixing the optional end turning attachment CL3/B (see assembly instructions for CL3/B).

Fitting a DML36SH-CAM Lathe to the Bench

The DML36SH-CAM can be mounted on the bench at an angle using the holes in the top plates as indicated. Alternatively, additional holes can be drilled in order to mount it square. See **Fig 22.2**.



Please note: The maximum rigidity of the bench will not be achieved until the lathe is bolted firmly in position, **Fig 22.3**.



EU Declaration of Conformity

Cert No: EU / CL3 / 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: **CL3-CAM & CL4-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

