

TA315/400/450
Tilt Arbor Sawbench
Operation and Maintenance
Instructions



SERIAL NO: 1AH3586

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Tilt Arbor Sawbench
Operation and Maintenance
Instructions

Declaration of Conformity 93/44/EEC

MANUFACTURER'S NAME AND ADDRESS:

M. Sedgwick And Company Limited
Swinnow Lane
Leeds LS13 4QG
England

PRODUCT DESCRIPTION & TYPE

Tilt Arbor Sawbench type TA315/TA400/TA450

NAME AND ADDRESS OF EC TYPE EXAMINATION BODY

A.E.A. Technology
Risley
Warrington WA3 6AT
England

CERTIFICATE NUMBER

0466/94/7-2

SIGNATURE OF AUTHORISED REPRESENTATIVE



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Introduction

This Instruction Manual is designed for you in accordance with The Supply of Machinery (Safety) Regulations 1992, and the Supply of Machinery (Safety) (Amended) Regulations 1994, which implement the European Machinery Directive 89/392/EEC. We strongly recommend that in order to ensure good safe working practice you read it carefully prior to commencing either installation or operation of the machine. Your supplier will be pleased to provide any further advice or assistance that you might require.

Design and Purpose

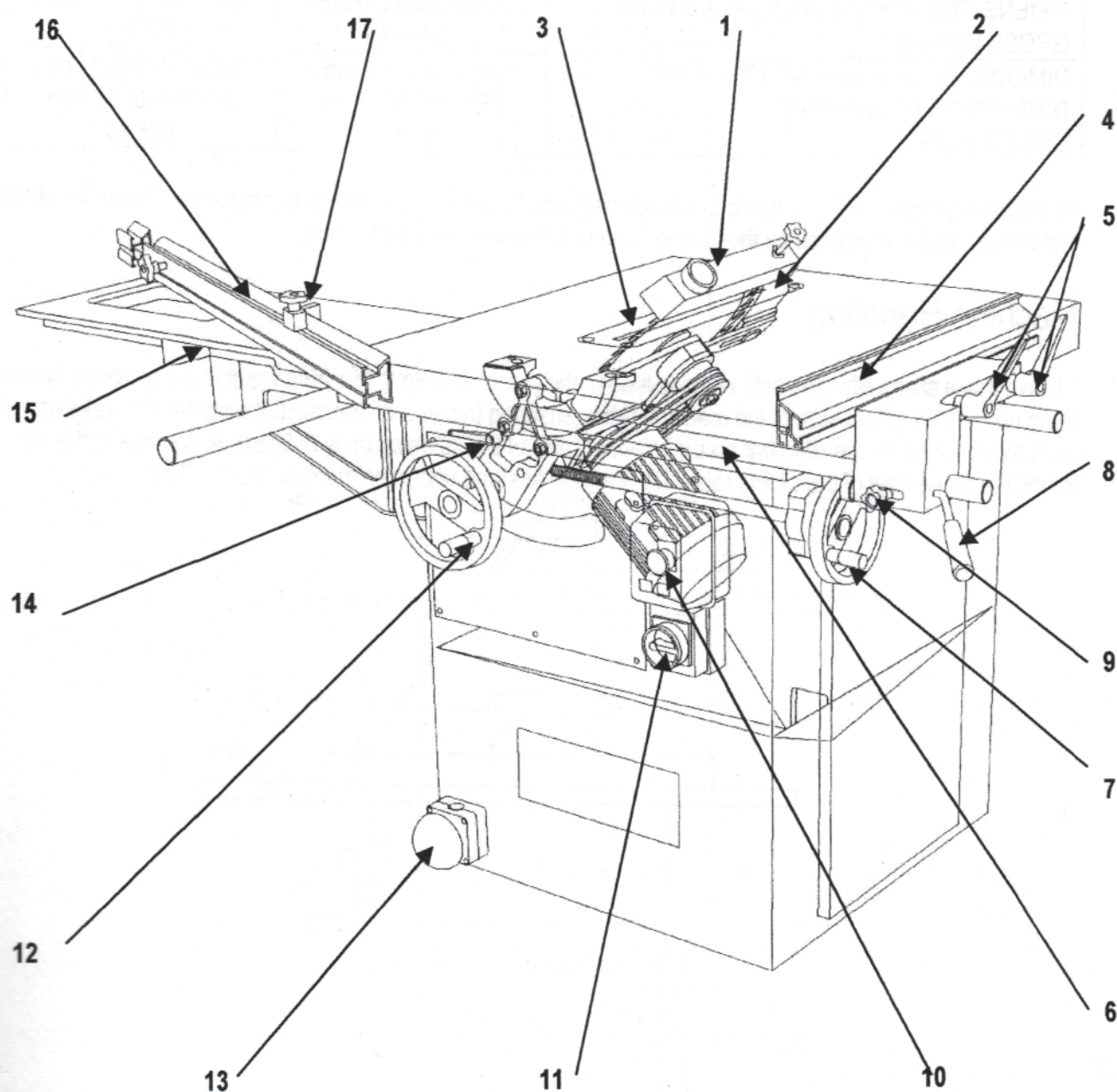
The Sedgwick Tilting Arbor Sawbench is a hand fed circular rip saw designed to re-saw timber and other analogous materials. These operations include Deep Ripping, Angle Ripping, Bevelling, Cross Cutting, Mitring, Compound Angling, and Panel Cutting.

Machine Specification

MACHINE TYPE	TA315	TA400	TA450
SAW BLADE DIAMETER	315mm	400mm	450mm
SAW BLADE BORE	30mm	30mm	30mm
SAW BLADE PROJECTION @ 90° @ 45°	105mm 76mm	125mm 85mm	155mm 105mm
SPINDLE SPEED	3700rpm	3100rpm	3000rpm
MOTOR RATING	3.0Kw (S1) 3.0Kw (S1)	5.5Kw (S1) 3.8Kw (S6 40%)	5.5Kw (S1) N/A
SIZE OF TABLE	800mm	1125mm 900mm 850mm 610mm 825x100mm 150mm 50mm 1445CMH	
LENGTH	750mm		
WIDTH	850mm		
HEIGHT OF TABLE	610mm		
DISTANCE SAW TO FENCE	600x75mm		
FENCE WITH MICRO ADJUSTMENT	150mm		
DUST EXTRACTION OUTLET MACHINE	50mm		
SAW GUARD	1445CMH		
TOTAL AIR VOLUME REQUIRED			

620mm CROSS CUT TABLE		STANDARD	OPTIONAL
TABLE SIZE	LENGTH	600mm	
	WIDTH	350mm	
DISTANCE SAW TO MITRE FENCE		620mm	
1220mm PANEL SIZING TABLE		OPTIONAL	OPTIONAL
TABLE SIZE	LENGTH	950mm	
	WIDTH	1000mm	
DISTANCE SAW TO MITRE FENCE		1220mm	
RIGHT HAND EXTENSION TABLE		OPTIONAL	OPTIONAL
TABLE SIZE	LENGTH	800mm	
	WIDTH	600mm	
DISTANCE SAW TO MITRE FENCE		1220mm	
REAR TAKE OFF TABLE		OPTIONAL	OPTIONAL
TABLE SIZE	LENGTH	800mm	
	WIDTH	700mm	

Illustration Drawing



1. Sawguard
2. Riving Knife
3. Table Insert
4. Rip Fence
5. Fence Clamp Handles
6. Front Graduated Guide Bar
7. Blade Tilt Handwheel
8. Fence Lock
9. Fence Micro-set Control

10. Stop/Start Controls
11. Isolator
12. Rise and Fall Handwheel
13. Foot Stop Switch
14. Tilt Locking Handle
15. Rolling Table
16. Cross-cut Fence
17. Length Stop

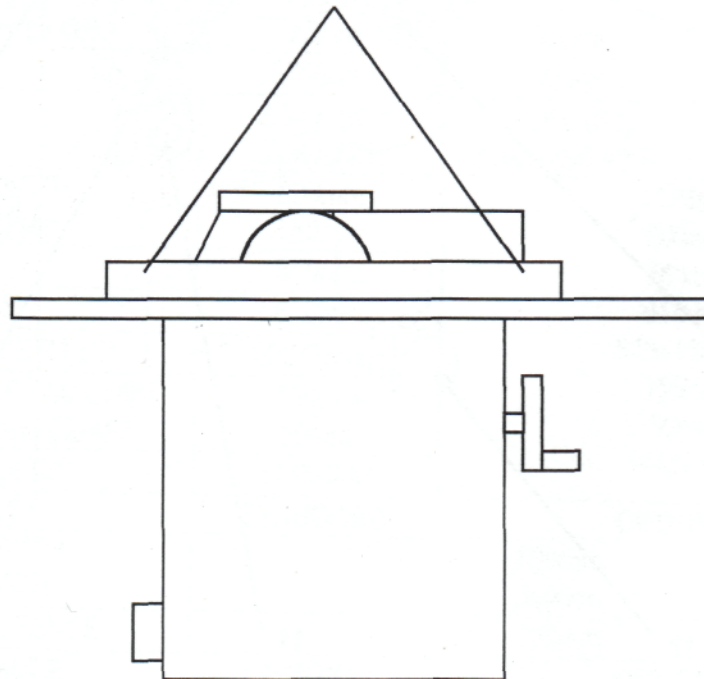
Shipping Details

		TA315	TA400/450
DIMENSIONS (machine only)	L x W x H	1500x1200x1200mm	1300X1400X1250mm
GROSS WEIGHT		345 kg	575 kg
DIMENSIONS (machine c/w 1220mm Panel Table)		1500x1200x1300mm	1300x1400x1350mm
DIMENSIONS (Support Bar)		2720x250x200mm	2720x250x200mm
GROSS WEIGHT		466 kg	688 kg

The following section offers a guide to transporting, assembling, and installing the machine. These are all skills that should not be attempted by those who have not received relevant training.

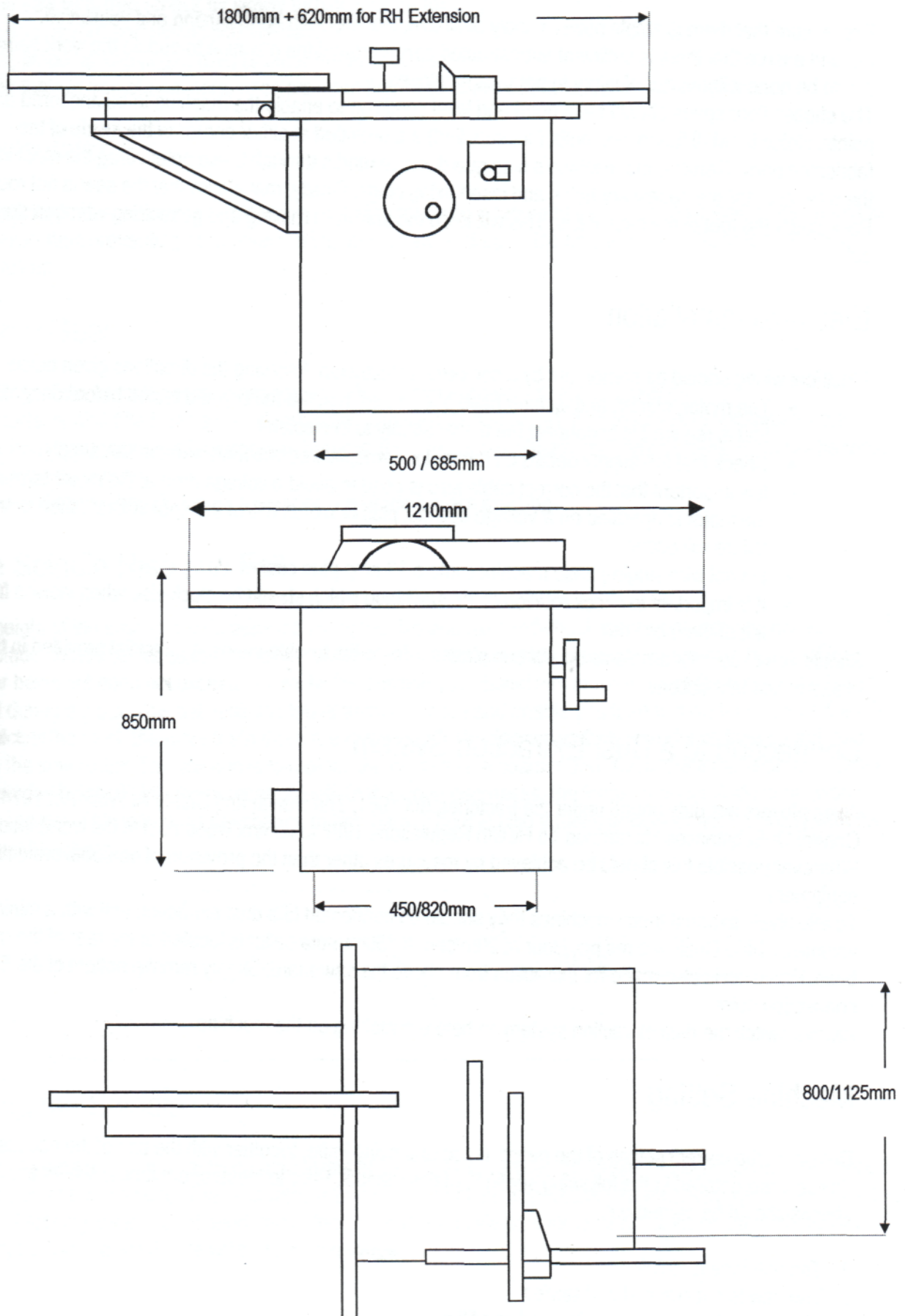
Machine Handling

Always use a sling within the safe working load of the machine weight. Machine weights are provided above. Sling underneath either side of the machine table, ensuring that you do not catch the starter etc. Take care not to lift the machine by the slide bar on the left-hand side of the machine table (if fitted) as damage to this will inhibit the movement of the sliding table. Do not walk or stand under the machine during lifting.



Remove the protective rust preventative using turpentine or paraffin. Do not use any solvent, petrol or gas oil, which might dull the paint or oxidise the paint-work. Lightly oil cleaned surfaces to prevent rusting.

Foundation Drawing



Positioning

First ensure that there is ample power supply available, together with good lighting and ventilation.

Second ensure that there is sufficient unobstructed space around the machine to enable the work being done at it to be done without risk of injury to persons employed.

The chosen floor space should be in good and level condition to enable the machine to be anchored at four points. Holes for M10 foundation bolts (not supplied) are provided at either corner of the inside of the fabricated body. Remove the machine's side guard, score marks through these holes, drag the machine out of the way, and drill the necessary holes and insert fixing plugs. Finally, make sure that the saw is not rocking. Pack under the feet of the base if it is. This will keep the saw from rocking and generating vibration during the cut.

Electrical Installation

Electrical wiring should be carried out by a competent electrician, following the directions given below.

- The motor, starter, and isolator have been wired in at the factory and tested before despatch. All that is required is to connect the power supply to the isolator.
- Check that the supply details on the motor nameplate correspond with the site supply.
- It is important that the correct cable size is used to avoid a voltage drop at the motor terminals. If the motor is operated on a voltage outside, plus or minus 6% of the spot voltage, then premature failure will occur.
- Do not wire single-phase machines into a 13 amp plug socket.
- It is important to check rotation of the sawblade which should be clockwise when viewed from the left of the machine.

Should you encounter problems on start up please refer to the trouble shooting checklist provided in the Maintenance Instructions.

Connection to a Dust Extraction System

All employers are duty bound under the Factories Act 1961, The Health and Safety At Work Act 1974 and the Control Of Substances Hazardous To Health Regulations 1988 to control wood dust in the workplace.

Wherever possible this should be achieved by measures other than the provision of personal protective equipment.

To effectively exhaust these machines they should be connected to a dust extraction unit with a minimum air volume of 1400 Cubic Metres per Hour at 20m/sec. A 150mm-dia outlet is located at the rear of the machine base. Provision is also made for extraction from above the sawguard. Simply remove bottom of the 50mm dia connection point.

Always switch the dust extraction system on before switching on the machine.

Machine Setting

Details on the correct setting of the guard, fence and riving knife, together with the use of the necessary safety devices, are detailed in the following sections of this manual. Prior to these operations however the following checks should be carried out:

1. The machine is isolated.
2. The saw is not cracked or distorted.
3. The saw collar is clean and in good condition.

4. The sawblade is mounted correctly for clockwise rotation when viewed from left-hand side of machine.
5. The gap plate is correctly positioned.
6. The saw runs free (check by slowly turning it by hand).
7. The sawguard and riving knife are secure.
8. The timber is free of grit, nails or other foreign bodies.
9. The table is free of spanners, rules etc., and that all tools are returned to their rightful place.

The Isolator

The function of the isolator is to cut off power to the machine when setting up, or when carrying out repairs to the motor, thus preventing accidental start up of the saw. It should also be used when the machine is left unattended.

Switch Gear

For your safety, control switches are colour coded: green is power on, red is power off.

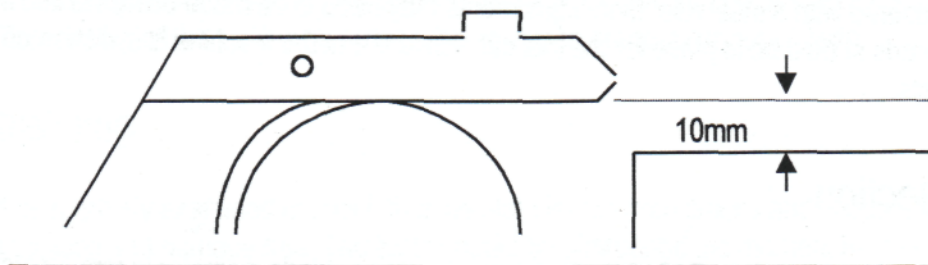
The starter is also fitted with an overload switch and reset button (blue). Its purpose is to help protect the motor from overloading and subsequent burnout. If the motor over-heats, the switch opens. It cannot be reset until the motor cools.

Caution: Ensure that all stock is clear of the blade before start-up.

The Spindle Rise and Fall

The height of the saw spindle is adjusted using the rise and fall handwheel at the front of the machine.

The blade should be set so that the distance between the bottom edge of the sawguard and the top of the timber being cut does not exceed 10mm. In this position you should aim to have 3-5 of the blade's teeth in the wood during the cut. This will minimise the amount of friction and enable you to maximise feed speed. Clearly, the thicker the stock the more teeth there are in the wood. This increases friction, reduces feed speed, and taxes the saw motor. The solution is to replace the blade with a coarser one. Avoid the temptation to raise the blade to full height. While the number of teeth in the wood decreases, the footprint of the blade in the wood is much greater. This increases the chance of kick-back. There is also a much greater chance of injury with the blade at full height.

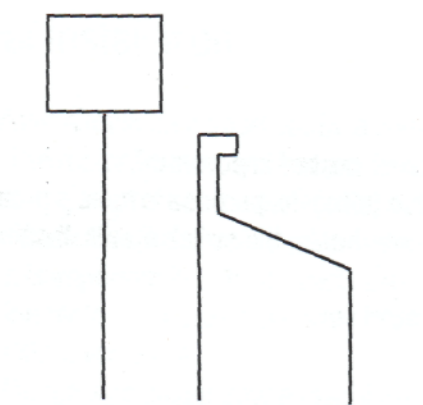


Tilting the Spindle

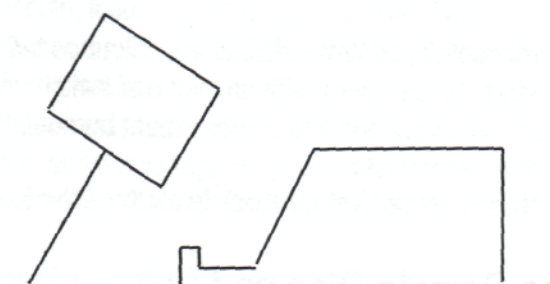
The motor and motor bracket tilt on a quadrant of 45° from the vertical, by means of the handwheel positioned to the side of the machine. The graduated protractor scale at the front of the saw indicates the angle at which it is set. A locking lever is positioned above the rise and fall handwheel for locking / unlocking the tilt. **Do not attempt to tilt the sawblade with the lock engaged.**

The Rip Fence

The function of the sawfence is to act as a guide and support to the timber. It can be adjusted fore and aft to suit the operation being carried out. When ripping, the front edge of the fence should be in line with the root of the teeth of the sawblade. When crosscutting, the maximum possible length of fence should lie on the machine table. To adjust, simply release the two clamping levers at the back of the fence. Note: the fence casting is eased along its travel by means of a nylon roller. To ensure that the roller remains in contact with the machine table in all fence positions, the fence extrusion should be set slightly higher than the table itself. When sawing thin pieces of timber ensure that the two positional fence is adjusted to suit:



High position for deep work



Low position for shallow or angled cutting

The Rip Fence Fine Adjuster

For approximate setting of the width of cut the table rule can be used, located on the fence support bar, although the accuracy of this will depend on the sawblade being used. The most reliable method for setting the width of cut is to measure from the fence to the inside edge of the tooth. This takes account of different amounts of set on the saw teeth of other saws. To take account of any wobble on the saw, a trial cut should be made and measured with a steel rule; then adjustments may need to be made using the fine adjustment screw. The guards should be in place for the trial cut. Ensure that the machine is switched off before making any adjustments.

Blade Selection

The machine's designation (e.g. TA315) indicates maximum sawblade diameter in mm. Spindle speed is set accordingly, and we do not recommend the use of smaller diameter sawblades, which require a much faster running speed. When using a smaller diameter sawblade, be sure that its rpm rating is correct for the saw. The blade's peripheral speed will decrease. This means that feed speed (speed at which stock goes through the blade) will also decrease. This could mean increased friction and burning. Smaller diameter blades should have fewer teeth than the larger diameter blade that has been removed. Do not attempt to use a blade that is less than 200mm dia on the TA315 or 300mm on the TA400/450.

All blades will require a 30mm bore and a 14mm pinhole (25mm from centre to centre).

Selecting the correct blade for each operation is an essential link in the sawing process. **Your guarantee will be invalidated if you do not select the correct cutting tools.**

The sawblade supplied with the machine is a 24 or 36 tooth tungsten carbide tipped anti-kick back blade, with alternate top bevel and raker teeth to give a good finish for both ripping and crosscutting applications. Its anti-kick back feature limits the size of bite any tooth can take, and therefore the grip that the saw has on the wood, giving the operator better control of the stock. It does however make the blade unsuitable for deep ripping. When cutting material in excess of 76mm, use a blade which is expressly designed for this purpose. Misuse will put undue load on the motor, which could cause long-term damage to the motor windings. Tungsten Carbide Tipped sawblades will stay sharp for much longer than conventional saws, and will produce a much higher quality of cut. The following table gives examples of the type of TCT blades available, and their applications:

Type	Description	No. Teeth
<i>Softwood Rip</i>	For rough ripping of softwoods and green hardwoods Large gullet space for chip clearance and rapid cutting with grain	24 / 34
<i>Universal Rip</i>	Ripsawing of both hardwood and softwood and occasional rough crosscutting. 20° tooth angle, 10° alternate bevel.	32 / 40
<i>Combination Rip & Crosscut</i>	General Purpose Blade providing a good finish for both ripping and crosscutting applications. 10° tooth angle, 10° alternate bevel.	48 / 72
<i>Trimming</i>	Accurate sizing and trimming of timber, plywoods and particle boards, veneers and soft plastics. 10° tooth angle, triple chip.	72 / 96
<i>Finishing</i>	Fine trimming and finishing applications for double sided laminated boards, veneers and hard plastics. 50 tooth angle, triple chip.	96 / 120

Courtesy of Atkinson Walker

For maximum efficiency, always use the coarsest blade that produces adequate results.

Blade Maintenance

A dull, badly set or badly ground blade will cause slow, inefficient cutting. It will also increase the effort required for feeding and possibly overload the saw motor. It is good practice to have a second set of sharp blades available for when dull ones are away for sharpening (for saw sharpening services look under 'SAW SHARPENING & REPAIRS' in the Yellow Pages). Deposits of gum or resin near the saw teeth tend to cause a saw to stall or the timber to stick. This gum can be best removed with trichlorethylene, kerosene or turpentine. The most common method for cleaning off resin is to use a brush and scrape. A wooden scraper will avoid unnecessary scratching of the sawblade surface. **Never try to clean a running blade.**

Blade Changing

Saws should be regularly examined to check that the plate is free from cracks and is true, that the tips are firmly held in position and damage free. The teeth should be sharpened the moment they become dull. The Grinding of TCT Sawblades requires specialised equipment. This creates a tendency to retain the blade in the saw long after initial dulling takes place. This is a false economy.

To remove the sawblade first isolate the machine, then remove the gap plate. Loosen screw 'A' on the sawguard and tilt the front of the guard upward to expose the blade. Rotate the blade until one of the holes in the saw spindle (behind the fixed collar) is exposed through the slot in the cradle plate. Slide the spindle lock bar down the slot and into the exposed hole. This will prevent the spindle from rotating. Use the Saw Spanner provided to loosen and remove the securing nut. Note the direction of the thread, left hand. Finally remove the loose saw collar and blade. The use of a wire hook for transferring the saw to the tool room reduces the risk of cut fingers and damaged saw teeth (if the blade is dropped when carrying it by hand).

To replace the blade clean both saw collars, ensure that the sawblade being fitted is clean and sharp, and place onto the spindle ensuring that the direction of rotation is correct.

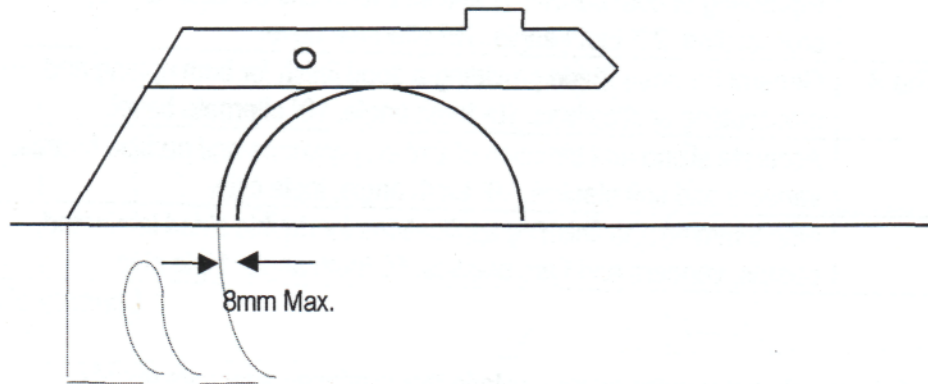
Replace the loose saw collar and saw nut and tighten.

Important: Remove the spindle lock bar prior to replacing the gap plate, levelling the sawguard, and re-tightening screw 'A'.

The Riving Knife or Splitter

The riving knife should be adjusted so that at table level the distance between the front of the knife and the saw teeth does not exceed 8mm and its arc follows that of the sawblade.

Its height should be adjusted so that the bottom of the sawguard covers the teeth of the sawblade. The sawguard must be adjusted so that it is parallel with the machine table using the sawguard horizontal adjustment.



Operation

Ensure that the sawblade has reached full speed before presenting the workpiece to it. It is essential that the machine is switched off when left unattended.

Pushsticks

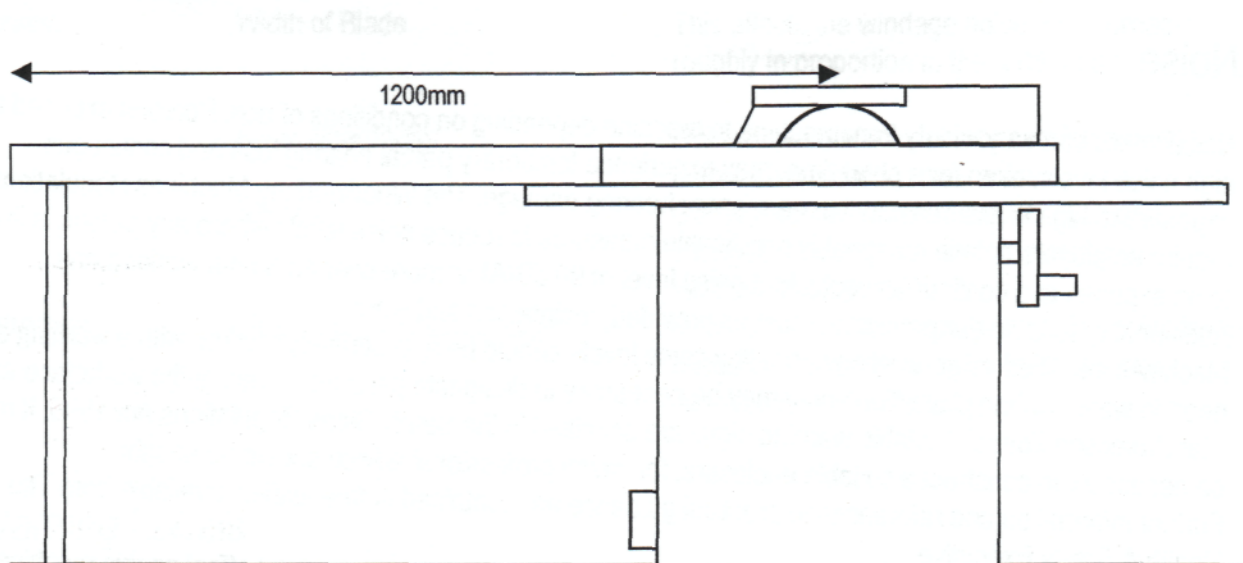
Pushsticks (provided as standard with this machine) should always be used when making any cut less than 300mm in length or when feeding the last 300mm of a longer cut, to avoid working with hands close to the sawblade. The leading hand should never be closer than is necessary to the front of the saw and hands should never be in line with the saw blade. When a pushstick is used, the left hand should be moved to a position along the plate of the saw, so that in the event of an unexpected movement of the workpiece, the fingers will not be thrown against the teeth.

A pushstick should always be used to remove the cut piece from between the saw and fence, unless the width of the cut piece exceeds 150mm.

A pushblock should be used when cutting small workpieces or in circumstances where it is necessary to push the workpiece against the fence.

The Rear Extension Table

If an assistant is employed at the rear of the machine to remove cut pieces the table should be extended so the distance between the saw blade spindle and the rear edge of the table is at least 1200mm. The assistant should always remain at the outfeed end of the extension table and should not lean forward and put his hands near to the saw teeth.



Limitations of Use and Safe Working Practises

Training and instruction is a central requirement of the Provision of Use of Work Equipment Regulations 1998 (PUWER). No hand-fed circular saw can be operated by any person under the age of 18 without them having first completed an approved course of training. The regulation does realise that young persons may need to operate one of these machines as part of a course, and such use is permitted provided that it is carried out under the supervision of a person who has thorough knowledge and experience of the machine and of its safeguarding requirements. It is essential that all operators of circular saws are adequately trained in the use, adjustment and operation of the machine, this covers in particular:

- The dangers associated with the operation of the machine;
 - The principles of machine operation, correct use and adjustment of the fence, blade and safeguards;
 - The correct selection of sawblade for each operation;
 - The safe handling of the workpiece when cutting;
 - The position of the hands relative to the blade and the safe stacking of workpieces before and after cutting.
- Persons who install this machine for use at work have a duty under the Health and Safety at Work Act 1974 to ensure, as far as is reasonably practicable, that nothing about the way in which it is installed makes it unsafe or a risk to health at any time during setting, use, cleaning, and maintenance. This includes such aspects as correct assembly, electrical installation, construction of enclosures, and the fitting of guards and ventilation equipment. When installing this machine consideration must be given to the provision of adequate lighting and working space.

Repairs and maintenance must only be undertaken by competent technicians. Ensure that all power supplies are isolated before maintenance work begins. Instructions for routine maintenance work are included in this manual.

The machine is designed to be operated by only one person. If an assistant is employed to remove cut pieces a table extension must be fitted to the rear of the machine as detailed above.

No circular sawing machine is to be used for the crosscutting of logs and branches. These operations relate mainly to the production of firewood and the practice of feeding the wood by hand to a conventional sawbench is not permitted.

The use of a circular saw for the cutting of any rebate, tenon, or groove is prohibited, unless the part of the blade above the table is effectively guarded. When it is not practicable to carry out these operations with the riving knife and top guard in position, suitable alternative guards and fixtures will be necessary.

Noise

Noise levels can vary widely from machine to machine depending on conditions of use. Persons exposed to high noise levels, even for a short time, may experience temporary partial hearing loss and continuous exposure to high levels can result in permanent hearing damage. The Woodworking Machines Regulations require employers to take reasonably practicable measures to reduce noise levels where any person is likely to be exposed to a continuous equivalent noise level of 90 dB(A) or more over an 8 hour working day.

Additionally, suitable ear protectors must be provided, maintained and worn.

Machines identified as generating unhealthy noise levels should be appropriately marked with a warning of the need to wear hearing protection and it may be necessary to designate particular areas of the workplace as 'Ear Protection Zones'. Suitable warning signs are specified in the Safety Signs Regulations Act 1995. It may be necessary to construct a suitable enclosure, for which professional advice should be sought.

Further information and references to practical guidance are contained in free leaflets available from The Health & Safety Executive.

Using correctly designed extraction hoods and a compatible system the compound effect on this machine was to increase the readings by 1dB(A).

The following noise levels were recorded at a distance of one metre from the machine (operator side) with a 24 tooth anti kick sawblade fitted, using varying feed rates and depths of cut.

TIMBER	DEPTH OF CUT	NOISE LEVEL dB(A) @ 1M
None	No load	80
Softwood	20mm	85
Softwood	38mm	87
Softwood	75mm	88
Hardwood	20mm	86
Hardwood	38mm	88
Hardwood	75mm	89

The figures quoted for noise are emission levels and not necessarily safe working levels. Whilst there is a correlation between emission levels and exposure levels, this cannot be used reliably to determine whether or not further precautions are required. Factors that influence the actual level of exposure to the work force include the duration of exposure, the characteristics of the workroom, the other sources of dust and noise, etc., i.e. the number of machines and other adjacent processes. Also the permissible exposure levels can vary from country to country. This information, however, will enable the user of the machine to make a better evaluation of the hazard and risk.

The list below outlines some of the variables which directly effect the noise level of the machines:

VARIABLE	RELEVANT FACTOR	EFFECT
Timber	Species	Hard stiff timber can mean more noise (approx. 2dB(A) difference when cutting oak and pine) & more transmitted noise.
	Width	Wide work pieces radiate noise over a greater area increasing the noise level.
	Thickness	Thin workpieces generally vibrate more increasing the noise level.
	Length	Long workpieces transmit noise away from the cutting area towards the operator.

Tooling	Width of Blade	This affects the windage noise and increases roughly in proportion to the width of cut.
	Blade Sharpness	Dull and worn blades exert more force on the timber thus creating more noise.
	Balance	Out of balance blades mean vibration and changes in cutting conditions, resulting in increased noise levels.
Extraction	Air Velocity/ System Design	Resonant conditions can lead to high noise levels, excessive turbulence and chip impact can increase noise levels substantially

Warning Labels

The warning label fixed to the machine gives the following advice. Please ensure that all operators read it carefully.

Ensure that you fully understand the manufacturer's instruction manual and have received sufficient training in the use of this machine and the particular safety precautions to be observed.

BEFORE OPERATING THIS MACHINE ENSURE THAT:

1. All guards and fences are securely fitted and correctly set in accordance with the current regulations.
2. Tooling is of the correct type, sharpness and direction of cut and is securely fastened.
3. Correct spindle speed and feed is selected (for the cutter equipment) where appropriate.
4. Loose clothing is either removed or fastened and jewellery removed.
5. Suitable jigs and push sticks are available for use where appropriate.
6. The working area is well lit, clean and unobstructed.
7. Extraction equipment where appropriate is switched on, properly adjusted and working efficiently.

DURING MACHINING:

1. Wear suitable protective equipment where necessary, e.g. goggles, ear defenders and dust mask.
2. Ensure all moving parts of the machine are stationary before setting, cleaning or making any adjustments.
3. Ensure all power sources are isolated before any maintenance work commences.

Warning of Residual Risks

In spite of the fact that all practical measures have been taken to ensure the safety of this machine, its safe use finally depends upon the operator's careful handling. Provided that the operator adheres to his training and follows the instructions in this manual, the likelihood of an accident is very low.

Maintenance Instructions

Cleaning and Lubrication

Keep the table clean and protected. Coating the cast iron with beeswax will reduce friction between the table and work-piece and inhibit corrosion. Avoid products that contain silicone, anti-slip additives, or abrasives. Avoid contact with anything moist. Don't set drinks on the tabletop, or leave green wood on it. These will leave permanent marks. Any surface rust can be removed with auto rubbing compound and a wool bonnet. Work slowly and carefully; use the rubbing compound liberally. If the saw is to be stored for any length of time, lightly oil any surface that may rust before storing. The oil can be removed later with mineral spirits or other solvent.

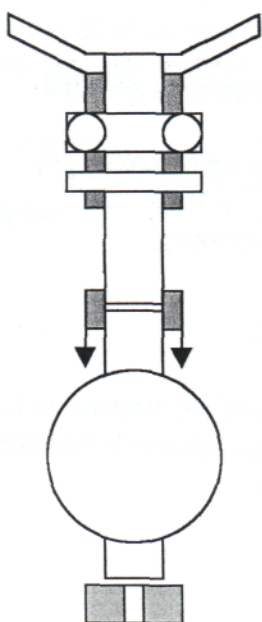
Always check that the table insert is correctly seated on the keeper plates when carrying out maintenance, or when changing blade. The insert should sit level with the tabletop without any rock in it. Too high at the front and timber will catch on the front edge of the insert before entering the blade, too low at the back and timber is in danger of catching on the inside lip of the table and being kicked back by the saw blade. The underside of the table has been precision machined, negating the need for adjusting screws. Should the insert not sit properly after a thorough clean it may have become twisted and should be replaced. Similarly, replace the four screws preventing the insert from lifting as necessary.

Clean the inside of the saw stand regularly. A build-up of dust or chips around the motor and controls can cause motor failure and will impair the movement of the rise and fall and tilt controls.

When lubricating the control mechanisms first check them for sawdust accumulation. Use a pitch remover and a wire brush to remove any build-up. Once clean, lubricate moving parts using a lubricant that does not pick up a lot of sawdust. Powdered graphite, hard wax or white lithium sprays are ideal. Do not use an oil-based product. These will collect sawdust and congeal into a gummy substance, making working parts hard to operate. Drive belts will also deteriorate if they come into contact with oil.

To remove the tilt screw, simply undo the two bolts fastening the bearing housing to the side of the machine and unwind the screw completely. Remember to replace the black plastic sheath when re-assembling.

The procedure for removing the rise and fall screw is as follows:



- 4) Wind hand-wheel. Screw should unwind out of the machine.
- 3) Remove pin and ensure collar will slide etc.
- 2) Loosen the collar used for fixing minimum saw projection and ensure it will slide along the screw (file top of screw if it won't).
- 1) Remove collar.

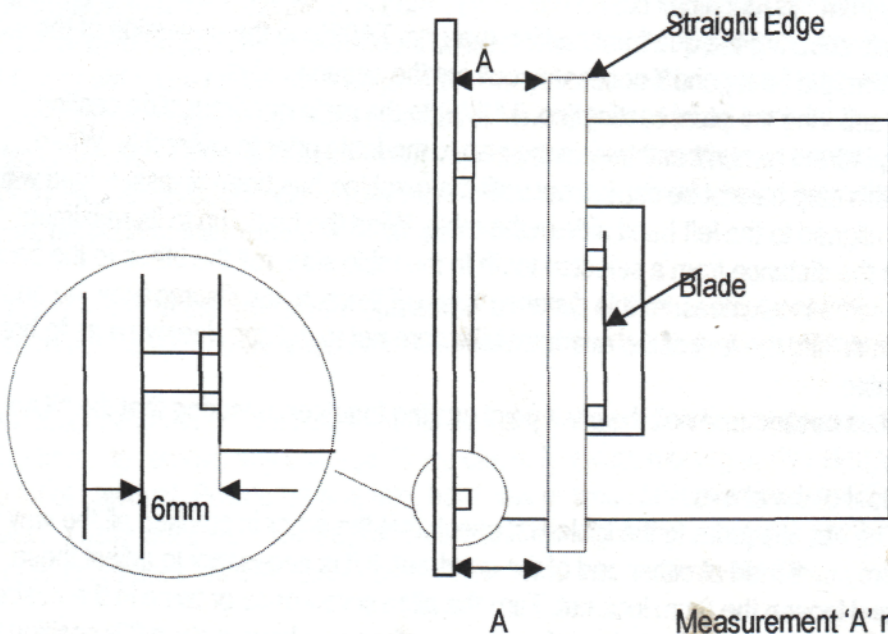
The tilt quadrant bolted to the underside of the machine table will require no maintenance provided that the saw is properly looked after. In the event that it becomes necessary to access the quadrant either to maintain or replace it we recommend that an engineer undertake the following procedure:

1. Isolate the machine.
2. Disconnect the incoming supply and the motor/footswitch wiring/conduit from the starter.
3. Unfasten the machine's foundation bolts.
4. Remove all extension tables together with the rolling table and support rail if fitted.
5. Remove the rip fence assembly and slide rail.
6. Remove the gap plate and saw blade.
7. Remove both the tilt and rise and fall screws as shown.
8. Turn the machine upside down and unfasten the four bolts anchoring the body to the underside of the table. Lift the body away from the machine.
9. Next remove the two bolts securing the quadrant casting (part no. TA020) to the underside of the table, lever the casting away from the table, and if necessary pull out the securing pins.
10. Remove the three bolts securing the pivot casting (no. TA022) to the main quadrant slide casting (TA021).
11. If re-using the existing quadrant remember to re-pin the part to the table prior to assembly. When replacing the quadrant this step cannot be carried out until the machine has been re-assembled with the blade on and the blade aligned to the left hand side of the table. Wind the blade up to its maximum projection and measure the distance from a selected tooth to the table side, roll the blade to the back of the table and using the same tooth measure this distance again, if there is any discrepancy the quadrant must be adjusted. When drilling the feet of the quadrant take care not to drill too deeply so as to break through the top of the table.
12. Fit the main quadrant slide casting and bolt the pivot point casting together, ensuring that the tilt nut is trapped between them.
13. Reassemble as a reversal of the above.
14. If the blade appears to be out of square to the table first check that the arbor is cranked all the way to 90°. Stops for 90° and 45° are positioned at either end of the quadrant. If it is necessary to adjust these, tilt the assembly off the stop and loosen the 8mm lock nut. Turn the allen screw once or twice in the desired direction. Tilt the blade back to the stop and check for square. When you have a good 90° position tighten the locknut and re-check. Finally set the blade position pointer to 90.
15. Refer to the sections on aligning the rip fence and aligning the sliding table when re-setting.

620mm Cross Cut Table Setting & Installation

If the cross cut table is not set parallel to the saw blade this causes heeling; that is, the blade is not parallel to the saw cut. Heeling is hard on the blade and can cause excess vibration. Start by checking that the cross cut shaft is level to the top of the table. The holes that are used to fasten the bar to the table are oversize and the bar can therefore be adjusted to suit. Next check that the shaft is parallel to the blade. To do this, simply follow these directions:

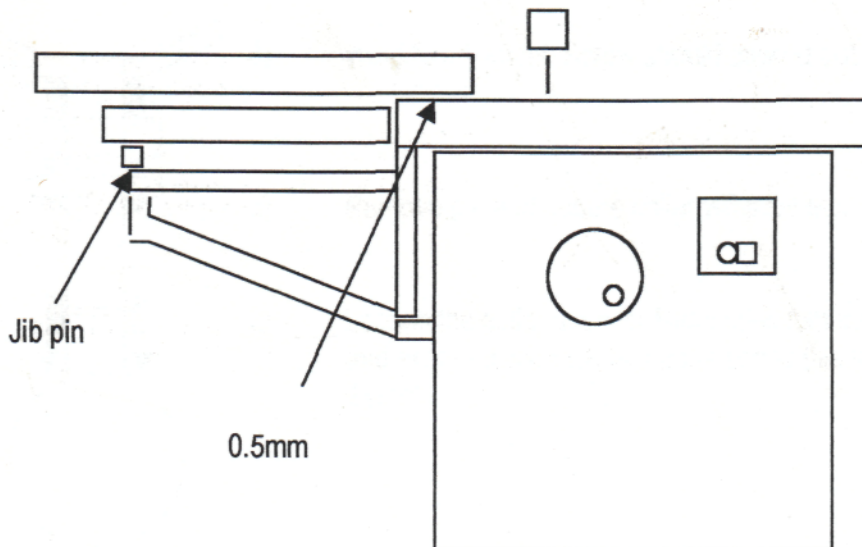
With the rolling table removed, place two spacers of equal thickness (about 25mm) against the front and rear of the blade (as below). Place a straight edge up to the spacers and take a measurement from the front edge of the bar to the straight edge. This should have been set at 16mm. Adjust the far end of the bar until it too measures 16mm.



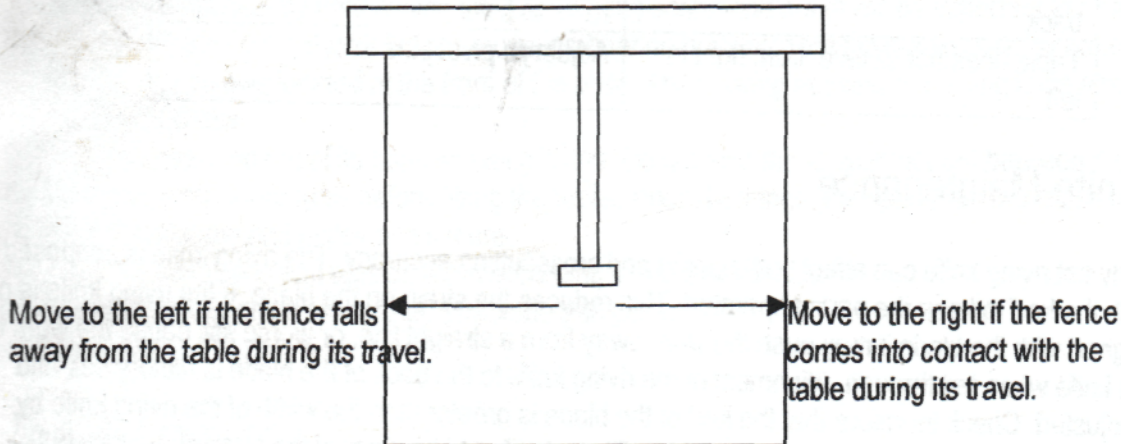
Measurement 'A' must be equal

Next roll the table onto the bar and position on the jib.

With table in its foremost position roll it forward until the cross cut fence is just over the front of the machine table. Using the adjustable jib pin (illustrated below) set the gap between the fence and the table to 0.5mm. Lock off the jib nut.



Roll the table through its full travel, checking that the gap remains the same all the way along the table. If the gap varies from one end to the other loosen the jib support bracket and adjust it either leftwards or rightwards. It is important that the bracket is re-tightened once adjustments have been made (24mm spanner required).



After the table has been lined up square the crosscut fence to the blade and re-set the 90° stop if necessary.

Looseness or slop between the table rollers and bar can also affect crosscut accuracy. Ensure that there is no sideways play in the two hardened rollers, and tension the bottom bearing on its adjustable strap to suit. Do not over-tighten, as this will impair the movement of the table and cause excess wear on the slide rail.

1220mm Panel Sizing Table Setting & Installation

On removing the protective packaging the Panel Sizing Table should be lifted off its supporting blocks and placed on the floor.

Next remove the tape securing the two table support jibs to the rolling table shaft, and check that both jibs run freely. Clean the protective oil from the rolling table shaft and remove the two slide bearings from the pins located at the end of either jib (note: the slide bearings will later have to be replaced onto the correct jib, do not get them mixed up).

Using a 6mm allen key remove the table stop screw located on the underside of the operating end of the rolling table shaft. Lift the Panel Sizing Table and roll it completely onto the shaft. With one person holding the weight of the table, the other person should slide the jib bearings onto the two shafts located on the underside of the rolling table. Swing the jibs into position and lower the two slide bearings onto the jib pins. Refit the table stop screw. Lightly oil all moving parts. Finally, undo the two shaft locking knobs and slide the shaft forwards from the operating end until it stops. This is now in the full 1220mm capacity position. Re-tighten the locking knobs and check that the table runs smoothly along its full travel.

Fault finding checklist

The Panel Sizing Table has been factory fit and tested, however if any problems are encountered with smooth and accurate operation of the unit the following checks should be undertaken:

Problem	Action
Table does not run smoothly along its travel	Check that all slides and shafts are free from debris i.e. resin build up (lightly oil). Check roller tension.

Table does not cut a square edge	Check that the cross cut fence is set at 90° to the sawblade. Adjust the stop to suit.
Table does not sit level from front to back	Using a 3mm allen key adjust the far roller to suit.
Table does not sit level from right to left	Adjust jib pivot pins to suit

Riving Knife Maintenance

An improperly set riving knife can affect both ripping and crosscutting accuracy. The riving knife is supposed to go through the kerf to keep the parts separated. This reduces the strain on the blade. If the riving knife is not correctly aligned with the blade it may push the work away from a straight line, or worse still cause the work to hit the riving knife when fed through. Alignment of the riving knife to the back of the blade is factory set, and cannot be adjusted. Check therefore that the kerf of the blade is greater than the width of the riving knife by placing a steel rule alongside each of the riving sides. The rule should be clear of the plate of the saw but should catch on the teeth. Check also that both sides of the riving knife are square to the table using a 6" square, and that it isn't bent. Straighten a bent riving knife using a hammer. If the riving knife is out of square gently twist the knife by placing pressure on one side or other of the sawguard.

A narrow kerf sawblade will have to be used with a narrower plate riving knife. Again, ensure that the replacement knife is narrower than the saw kerf, but thicker than the plate of the saw. Always check alignment of the saw blade to the riving knife when changing blades.

If a blade continues to vibrate after having carried out all of the above checks check that the blade itself is not warped, dull, or has too thin a rim. Check for warp with a dial indicator or pencil. Disconnect the saw and place the point of the pencil against the blade. Slowly turn the blade while watching the pencil point. If the blade moves the pencil, or a gap appears between the blade and the pencil then the blade is warped. Try again with a true blade. If the problem persists check the saw spindle for wear, burrs and any play in the bearings that the arbor rides in.

Saw Spindle Maintenance

First check the fixed and loose saw collars to be certain that there are no high spots along the side that contacts the blade. Any high spots can cause the blade to vibrate in the saw kerf. Remove any high spots with a fine-cut file. Similarly inspect the arbor threads for dirt, burrs or raised nicks.

The main spindle bearings are sealed for life and require no lubrication. To check their condition, turn the arbor by hand while feeling for any roughness. Grasp the arbor and gently pull up and down to check for any play. Roughness or slack in the bearings means that they need to be replaced.

In the unlikely event that the bearings do have to be replaced the procedure is as follows:

Bearings required: TA315: 2 x 6205 2RS C3 Metric Bearings; TA400/450: 2 x 6207 2RS C3 Metric Bearings.

1. Isolate the machine.
2. Remove the machine's side panel, gap plate, sawblade, and vee ropes,

3. Remove the spindle pulley by unscrewing the 13mm bolt and washer located at the end of the spindle, gently tap the spindle out of the opposite end using a soft hammer and lift it up through the saw opening in the table top.
4. If it is necessary to remove the riving knife bracket and bearing housing start by removing the link from the riving knife bracket by unfastening the 13mm fixing screw and nut (it will be important to re-assemble this part facing the correct way). Next remove the bearing housing from the cradle plate by removing the four socket cap screws located at the front of the plate. The bearing housing and riving knife arm can then be removed as one.
5. Tap each bearing out of its housing using a drift. Do not lose the spacer located between the two bearings.
6. Clean all parts thoroughly before fitting the replacement bearings and spacer on the arbor.
7. Refit the spindle and pulley and secure.
8. Refit the vee ropes and tension them according to the instructions.
9. Replace the machine side panel, sawblade and gap plate.
10. Test.

Belt Tensioning

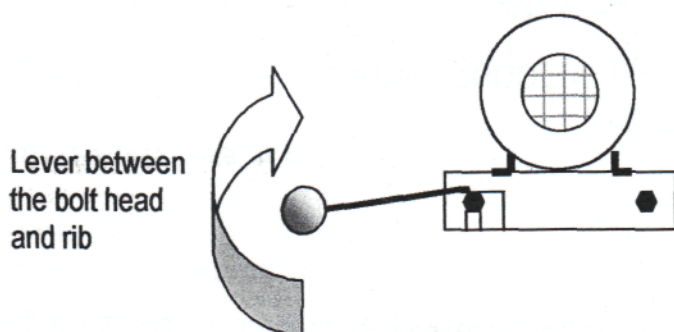
- The TA315 (standard) is driven via two SPZ487 vee belts.
- The TA315 (c/w Electro-magnetic brake unit) is driven via two SPZ487 vee belts.
- The TA400/450s are driven via three SPZ612 vee belts.

IN ORDER TO ENSURE THE CORRECT SPINDLE STOPPING TIME (I.E. < 10 SECS) IT IS VITAL THAT THESE ARE CORRECTLY TENSIONED AND REGULARLY CHECKED FOR WEAR.

Insufficient tension results in longer stopping times, belt slippage, loss of power (leading to motor failure), vibration, whip, excessive noise, and accelerated wear of the belt and pulley sheaves. Excessive tension stretches the belts, causes heat build up that accelerates deterioration and places unnecessary strain on the bearings. A properly tensioned belt will feel alive and vibrate when struck. If in doubt then the general rule is that belts should flex about 1/32 inch for every inch of span between the centres of the pulley.

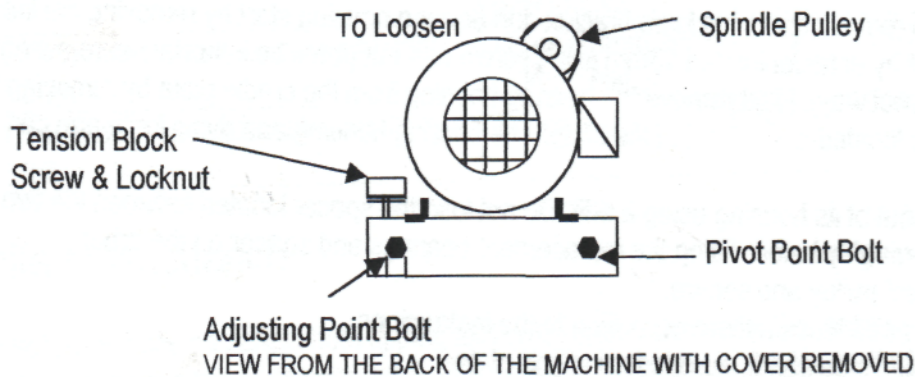
When the belts begin to show signs of wear replace them as a set, even if only one is worn; otherwise the newest belt will carry more of the load. Uneven loading results in premature wear and vibration in the saw. Frayed belts will also cause vibration.

On the TA315 belt tensioning is performed as follows:



The hexagon bolt on the RHS in the above illustration can be left tight whilst the LH bolt head is loosened and a screwdriver or similar inserted between it and the cast rib immediately above it. Lever the rib away from the bolt head to increase belt tension and re-tighten.

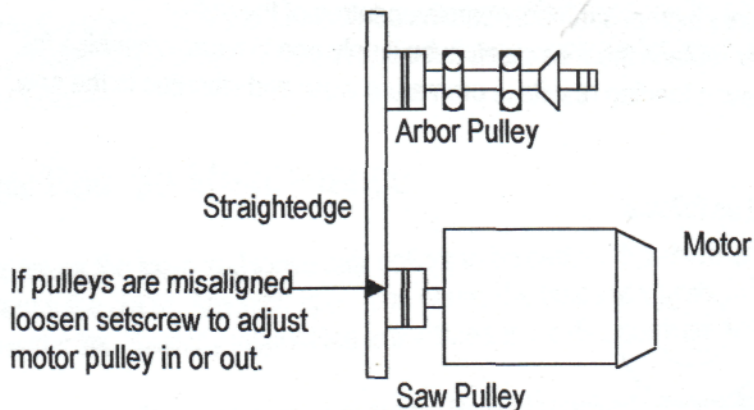
On the TA400/450s belt tensioning is performed as follows:



First undo the tension block screw so that there is no pressure on the motor plate, then using a 19mm spanner undo the adjusting point bolt by half a turn and push the motor upwards in the direction shown above. Remove the belts one at a time. Fit the new belts in reverse order and apply tension by means of the tension block. Tighten the locknut once the tension is set, and finish by tightening the adjusting point bolt with the 19mm spanner.

Pulley Alignment

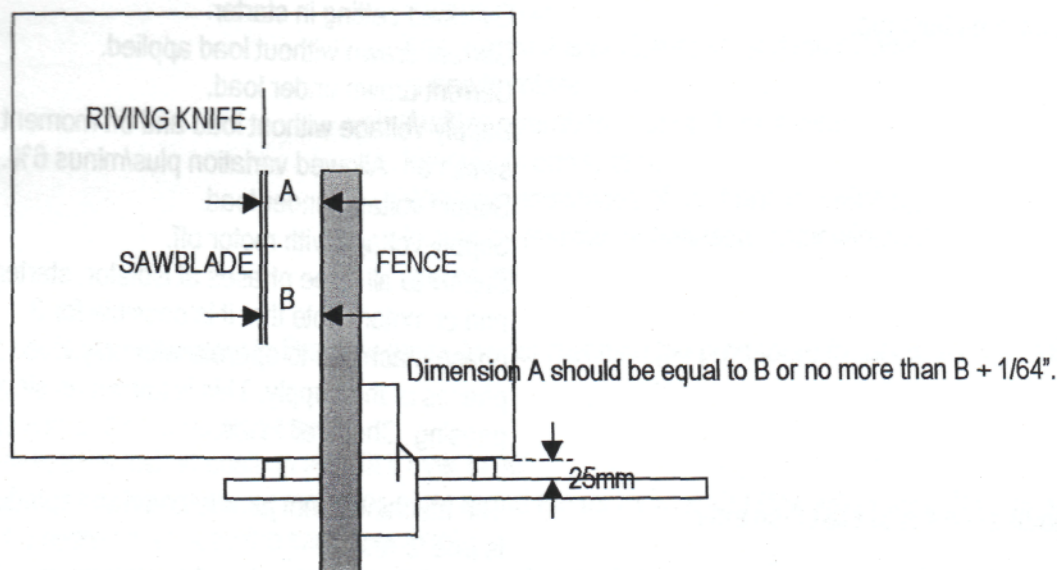
Excessive belt wear, vibration and noise may be the cause of poorly aligned or loose pulleys. Check alignment by placing a straight edge across the faces of the two pulleys. If necessary adjust the motor pulley by loosening the allen screw locking the pulley onto the shaft. If you cannot get the pulleys to align it may be because the shafts are not in line. Loosen the motor mounting bolts and shift the motor until you get the required results. Position the pulley as near as possible to the motor bearing. If it is set too far along the motor shaft it will put unnecessary strain on the shaft and bearings.



Rip Fence Alignment

Burning on the waste side of stock and/or the workpiece binding between the rip fence and the back of the saw, are both indicative of the rip fence being out of square to the blade. Check by placing a piece of $\frac{3}{4}$ " stock at the front and another piece at the rear of the near side of the sawblade. Slide the rip fence up against these to determine alignment. If necessary adjust the fence using the locking bolts at the back of the fence rail. So as to prevent the fence casting catching on the fixing studs a distance of 25mm from the fence bar to the table is required.

To reduce the potential for kickback set the rip fence so that it is slightly farther (about 1/64 in.) from the back of the blade than from the front, so that the rear teeth just miss the stock being cut.



When adjusting the position fore and aft of the rip fence set the extrusion so that it sits slightly above the table when clamped up against the fence casting. This will ensure that the nylon roller underneath the casting remains in contact with the table.

Alternatively the rip fence extrusion may have been bent. Check by placing a straight edge along its length. Either replace it, or add an auxiliary wood fence and shim it to even out any imperfections.

Electrical Information

M/c ref.	Supply	Motor ref.	Kw	Starter ref.	Rated Current	Starting Current	Required fuse size	Cable size
TA315-3	400-3-50	AM90LDA2	3.0 S1	DZ1369	6.5A	39A	20A/ph	2.5mm
TA315-1	230-1-50	AM90/A2	3.0 S1	DZ0205	18.7	70A	40A	4.0mm
TA450-3	400-3-50	AM112MBA2	5.5 S1	W18810	11.5A	69A	25A/ph	4.0mm
TA400-3	400-3-50	AM112MBA2	5.5 S1	DZ0204B	11.5A	69A	25A/ph	4.0mm
TA400-1	230-1-50	AMMES100/A2	3.8 S6	DZ0756	22A	100A	40A	6.0mm

Electric Motors: Trouble Shooting Checklist

THREE PHASE MOTORS

Symptom

Machine does not start at all.

Check

Isolator is switched to ON and all STOP buttons are out.

Overload button is reset.

Starter coil/contactor is operational.

There are no loose connections.

There are no fuses blown.

Supply is reaching the starter.

Supply is reaching the motor.

Voltage between the phases at starter and

Motor runs but trips.

motor.

Overload setting in starter.
Current drawn without load applied.
Current drawn under load.
Supply voltage without load and on moment of switch on. Allowed variation plus/minus 6%.
Supply voltage under load.
Supply voltage with motor off.
Supply to all three phases at isolator, starter and at motor. Note that it is possible for 3 phase machines to operate with only 2 phases of the supply. This is known as single phasing. Check all fuses.

Motor attempts to start then trips.

The machine is not jammed, and the spindle is free to rotate.
Winding resistance of each motor phase (values should all balance).
Insulation resistance between windings and earth.
The correct cable size has been used to install the machine (long runs of cable can cause voltage drop).

SINGLE PHASE MOTORS

Symptom

Machine does not start at all.

Check

Isolator is switched to ON and all STOP buttons are out.
Overload is reset.
Starter coil/contactors is operational.
The fuse isn't blown.
There are no loose connections.
Supply is reaching the starter.
Supply is reaching the motor.
Voltage between line and neutral at starter and motor.

Motor runs but trips.

Overload setting in starter.
Current drawn without load applied.
Current drawn under load.
Supply voltage without load and on moment of switch on. Allowed variation plus/minus 6%.
Supply voltage under load.
Supply voltage with motor off.
(Check at isolator, starter and at motor).

Motor attempts to start then trips.

For a single-phase permanent capacitor motor to reach its required starting torque a healthy line voltage is essential. Ensure that

TA400/450 - Three Phase W

the correct cable size has been used to install the machine (long runs of cable can cause voltage drop).

The machine is not jammed, and the spindle is free to rotate.

Audible operation of centrifugal switch.

Integrity of capacitors.

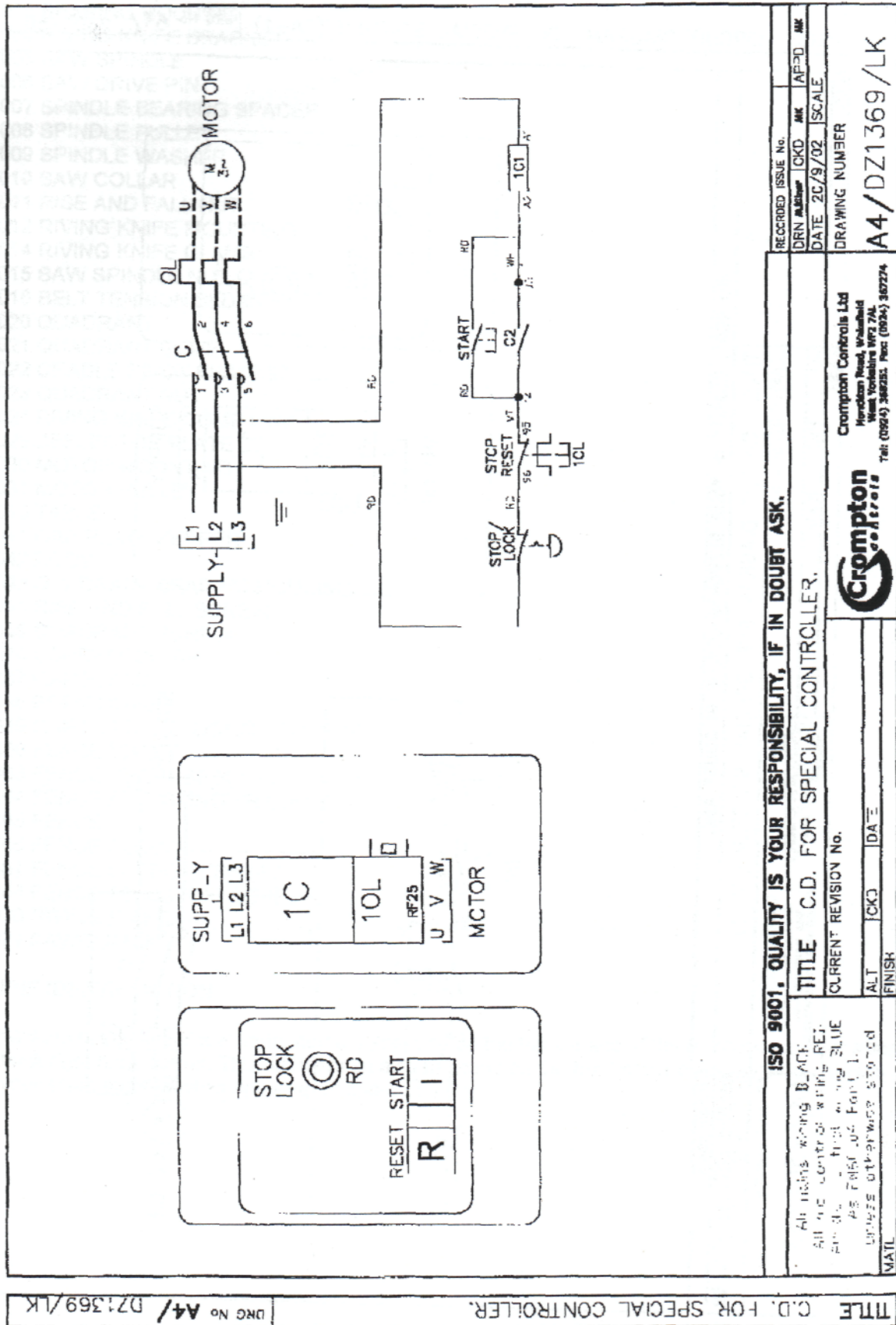
Winding resistances of start and run windings.

Insulation resistance between motor windings and earth.

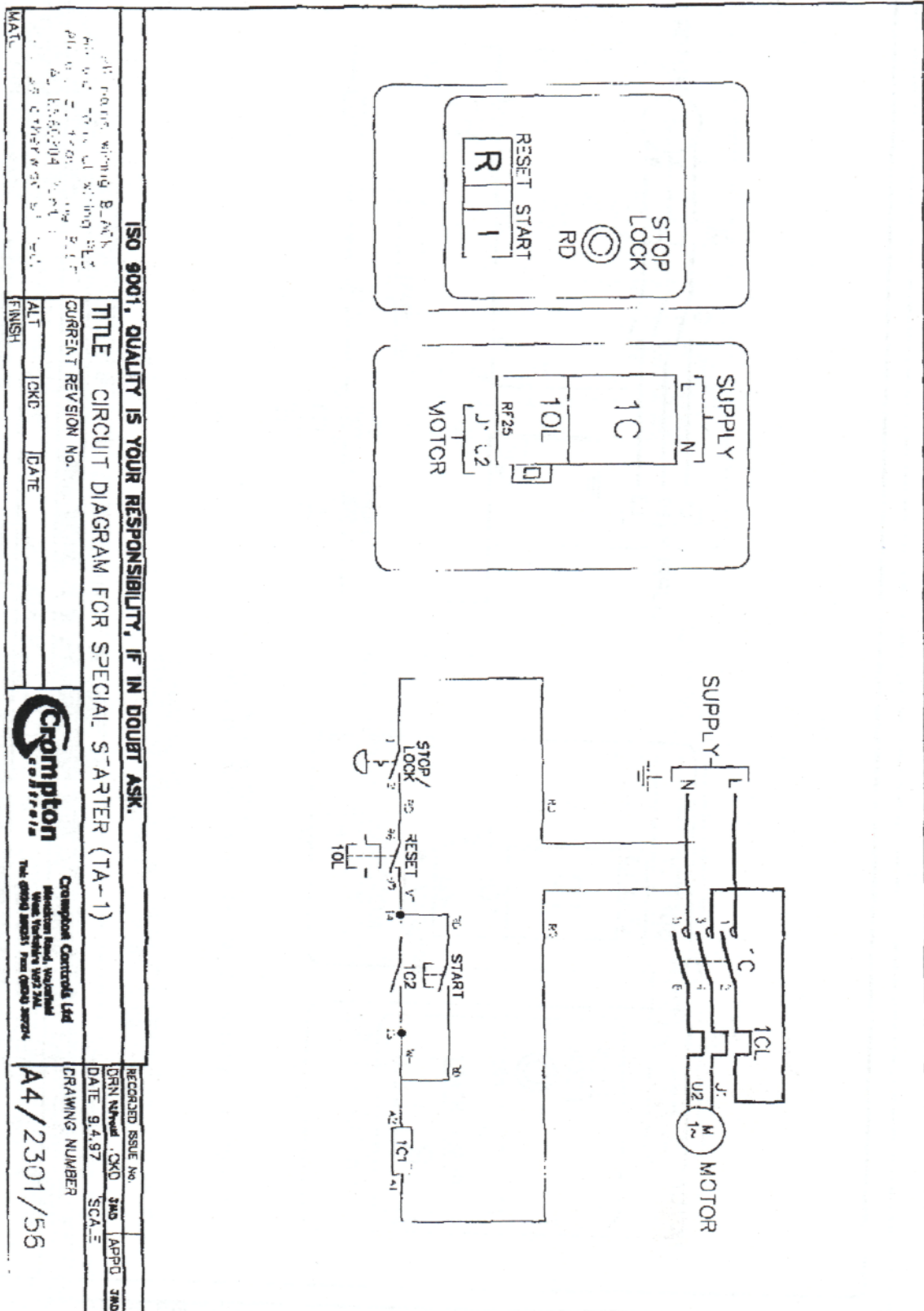
If at any time it becomes necessary to fit a new motor to your machine the procedure for doing so is as follows:

1. Isolate machine and remove side cover.
2. Drop the blade to its lowest position and tilt it over to 45°.
3. Scribe or draw a line on the motor mounting plate round the motor footprint (this will ensure that the new motor can be seated in exactly the same position).
4. Remove the terminal box lid on the motor and make a sketch of the mains supply connections and earth connection.
5. Unwire the motor and remove the conduit entry gland.
6. Tilt the blade back to its 90° position and slacken the two 19mm hex heads fastening the motor mounting casting to the cradle plate.
7. Remove the drive belts.
8. Unfasten the motor from its mounting plate (4 x 13mm hex heads) and draw the motor out through the access panel.
9. Measure the position of the motor pulley along the motor shaft and remove using a 4mm Allen Key. Fit the pulley to the new motor shaft in the same position.
10. Fasten the new motor to the mounting plate, aligning it with the scribed marks.
11. The motor is now fastened back onto its mounting plate, the pulleys checked for alignment, and the vee ropes re-fit and correctly tensioned.
12. Tilt the blade over to 45° to re-wire the motor.
13. Ensure that all fastenings are secure before replacing the back cover and testing.

TA400/450 – Three Phase Wiring Diagram



TA315 – Single Phase Wiring Diagram

TITLE CIRCUIT DIAGRAM FOR SPECIAL STARTER (TA-1) DRG No **A4/** 2301/56

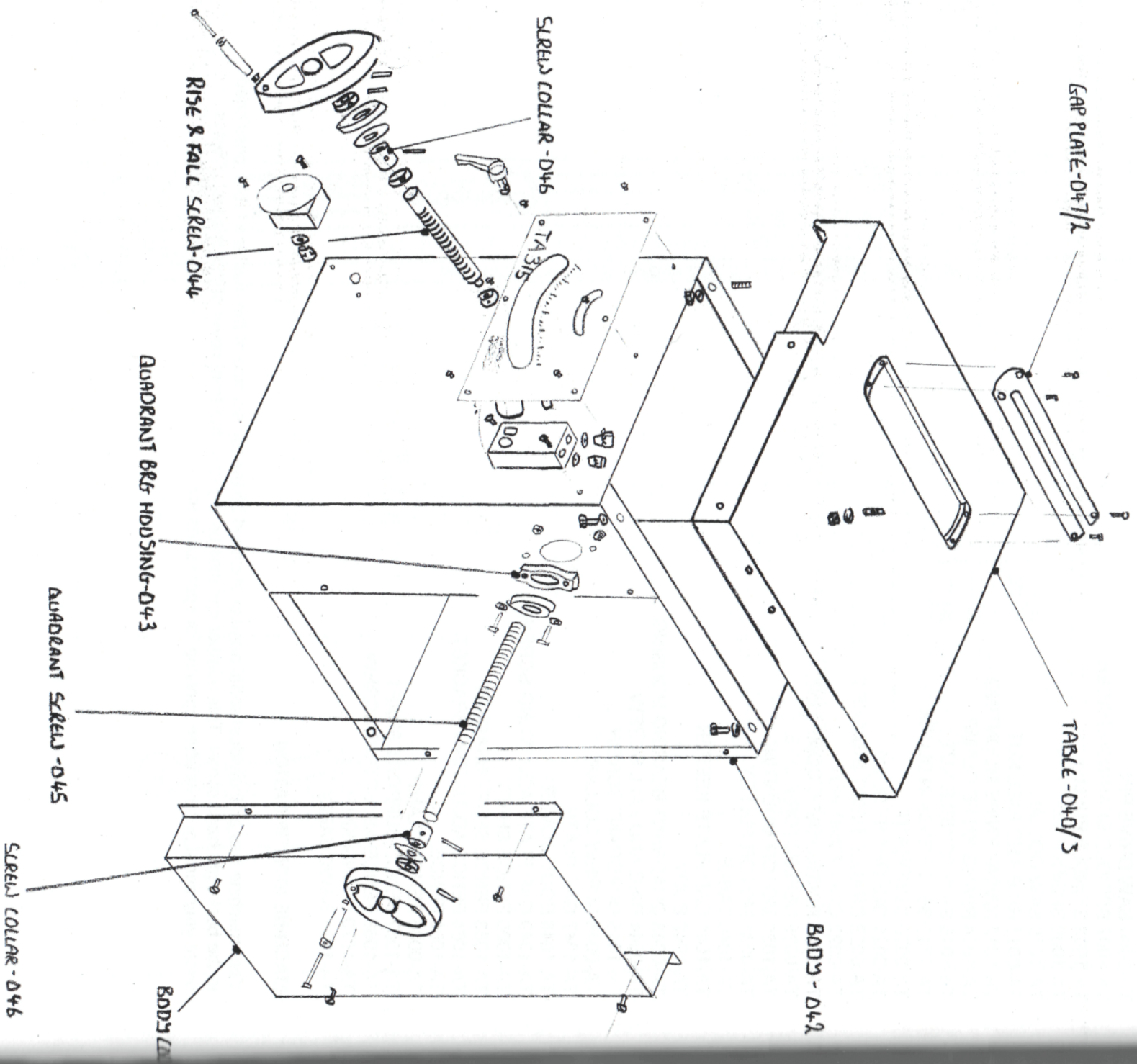
SEDGWICK TA400/450 TILTING ARBOR SAWBENCH - PARTS LIST

TA-1001 CRADLE PLATE
TA-0002 CRADLE PIVOT SHAFT
TA-1003 BEARING HOUSING
TA-1004 RIVING KNIFE BRACKET
TA-1005 SAW SPINDLE
TA-0006 SAW DRIVE PIN
TA-1007 SPINDLE BEARING SPACER
TA-1008 SPINDLE PULLEY
TA-1009 SPINDLE WASHER
TA-1010 SAW COLLAR
TA-0011 RISE AND FALL NUT
TA-1012 RIVING KNIFE MOUNTING
TA-1014 RIVING KNIFE CLAMP
TA-1015 SAW SPINDLE NUT
TA-1016 BELT TENSION BLOCK
TA-0020 QUADRANT
TA-0021 QUADRANT SLIDE
TA-0022 CRADLE PIVOT BRACKET
TA-0023 QUADRANT NUT
TA-1024 RIVING KNIFE COMP LINK
TA-0025 DEFLECTOR PLATE
TA-1030 MOTOR MOUNTING
TA-0031 MOTOR PULLEY
TA-1040 TABLE
TA-1041 GAP PLATE KEEPER
TA-1042 BODY
TA-0043 QUADRANT BEARING HOUSING
TA-0044 RISE AND FALL SCREW
TA-1045 QUADRANT SCREW
TA-0046 SCREW COLLAR
TA-1047 GAP PLATE
TA-1048 BODY COVER
TA-1049 GAP PLATE ADJUSTING SCREWS
TA-1060 FENCE SHAFT
TA-1063 FENCE SHAFT BRACKET
TA-1064 FENCE ADJUSTING BRACKET
TA-1065 FENCE
TA-0066 FENCE CLAMP
TA-1067 FENCE SUPPORT SHAFT
TA-1068 FENCE ADJUSTING SCREW
TA-1070 RIVING KNIFE
TA-1071 SAWGUARD

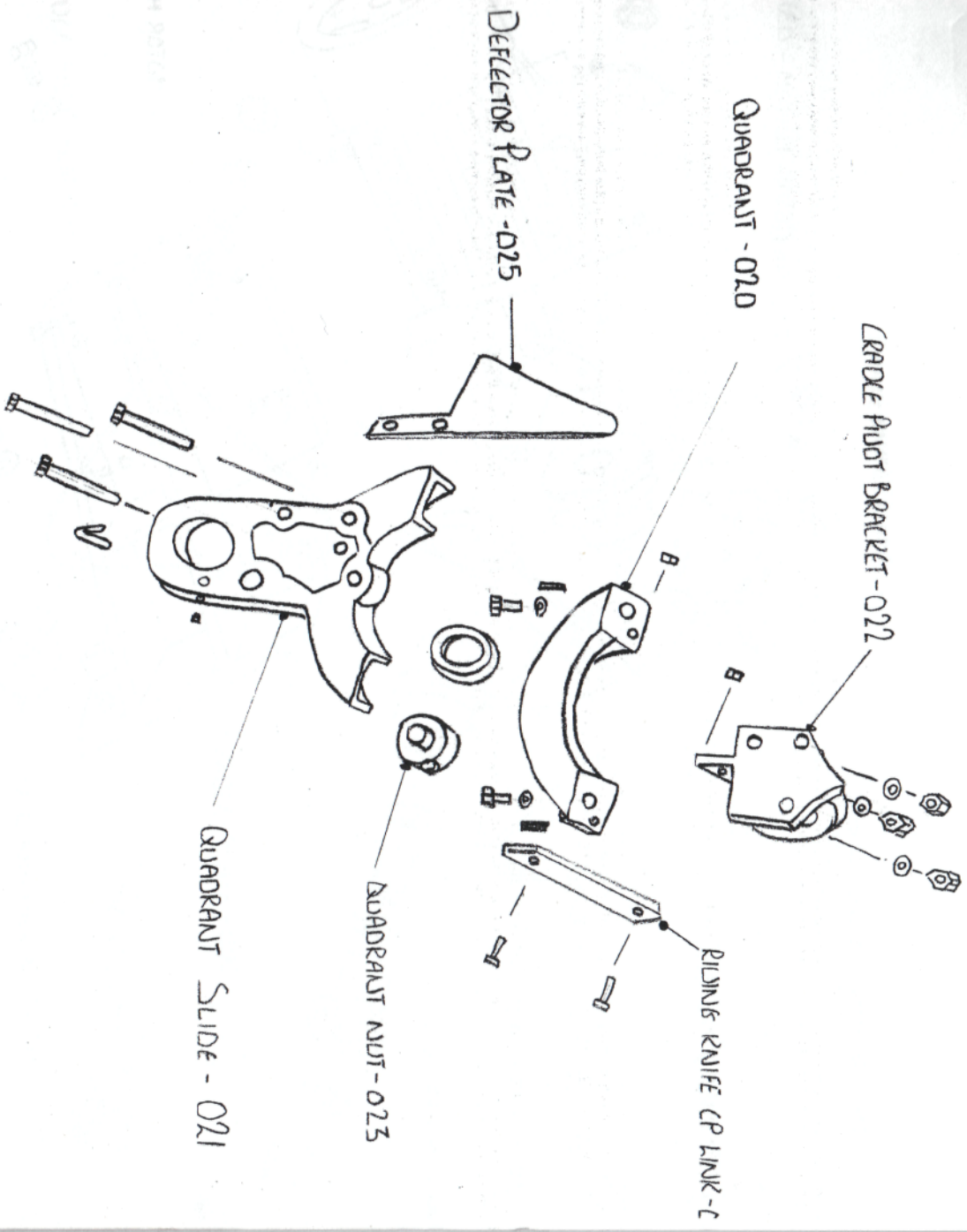
MACHINE IDENTIFICATION

Your machine has an individual serial number stamped on the top surface of the machine table, positioned in the back right hand corner. This number can also be found on the front cover of this manual. Always quote your serial number when applying for spare parts etc.

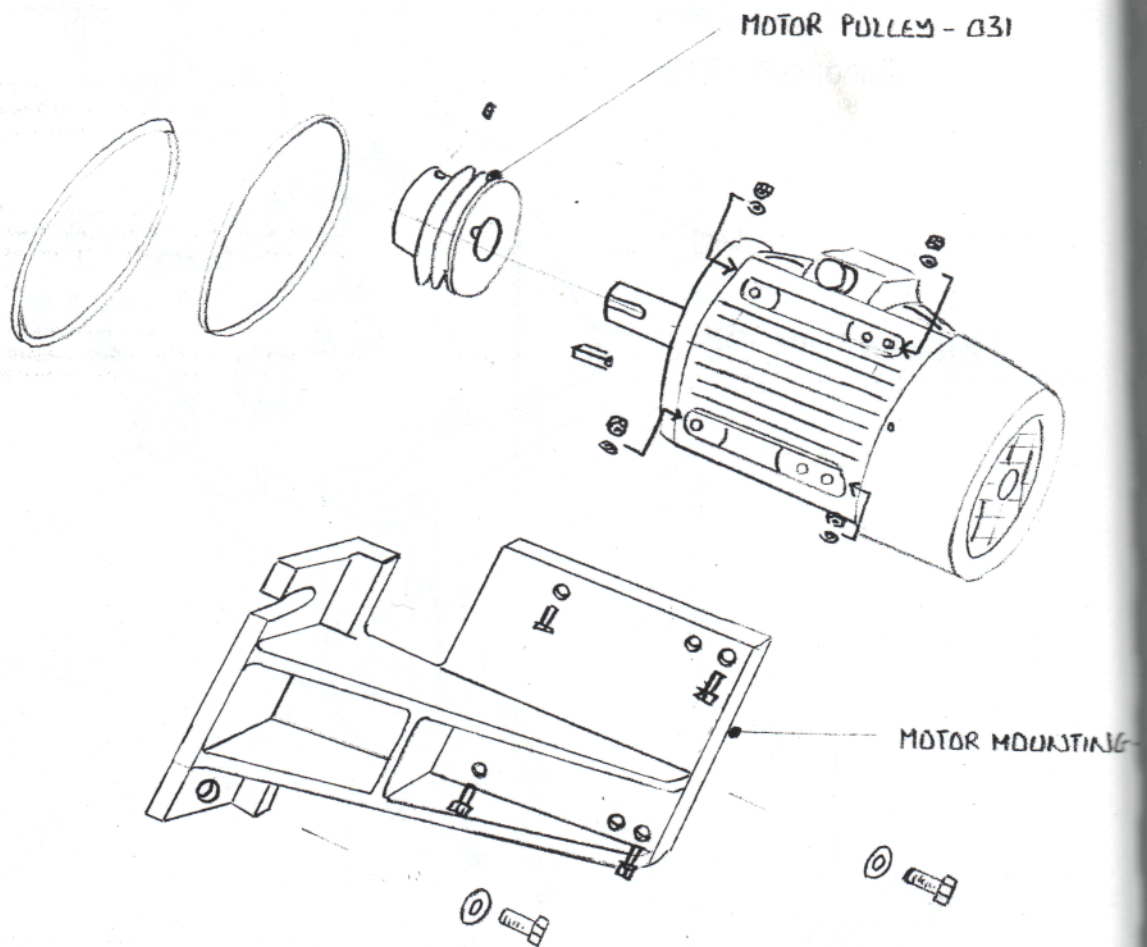
Body - Table



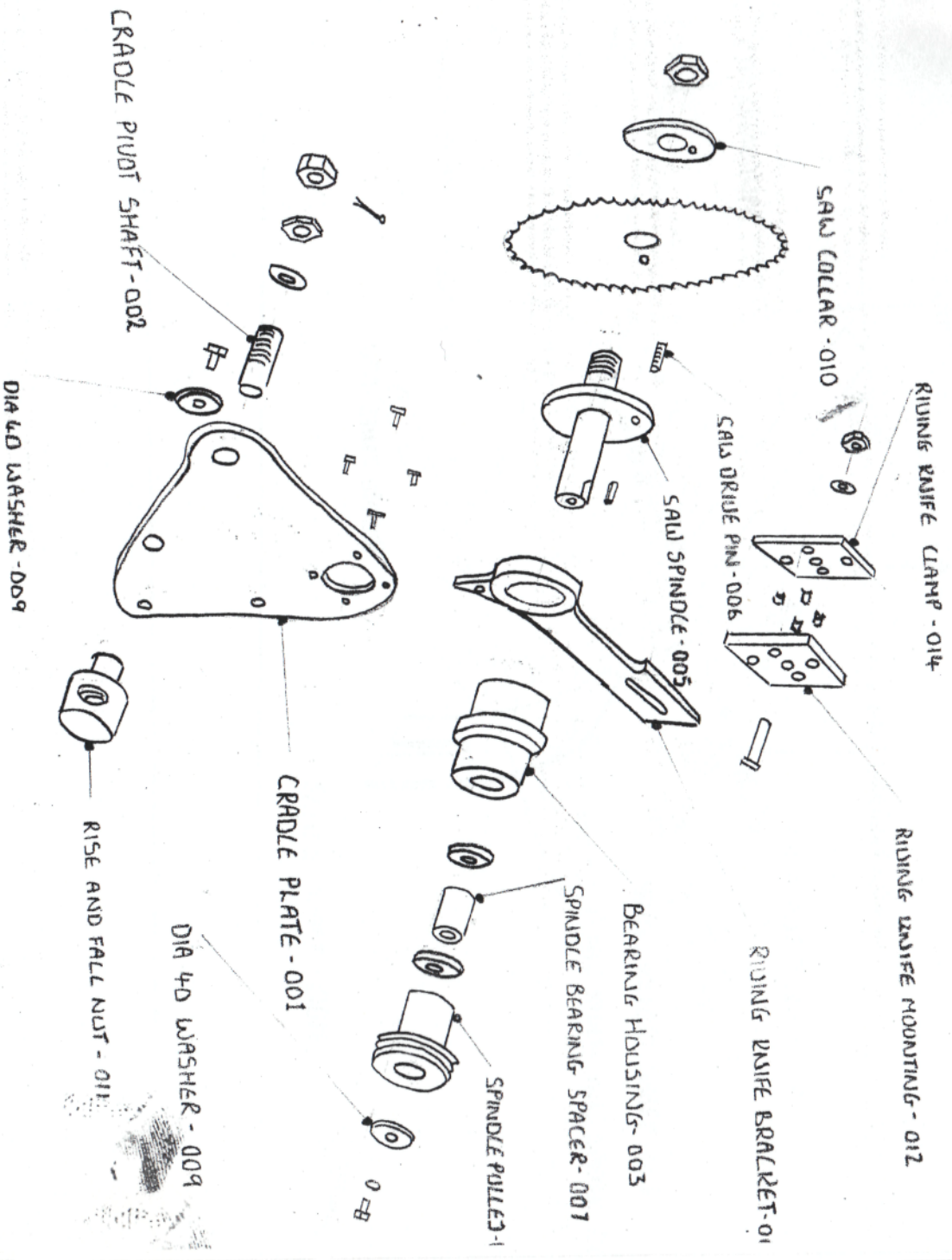
QUADRANT



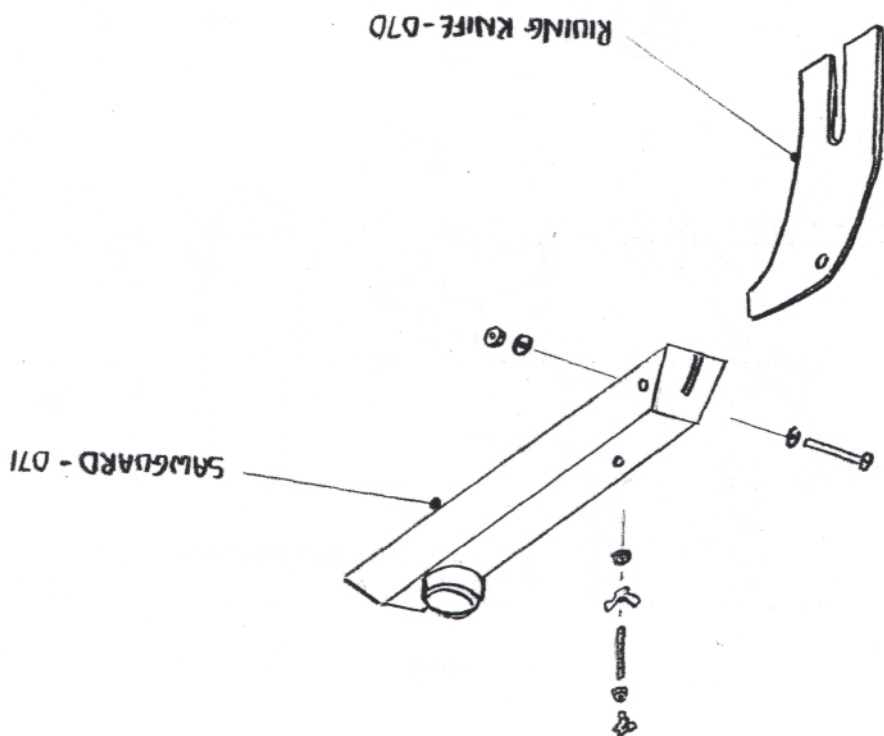
Booms MOTOR



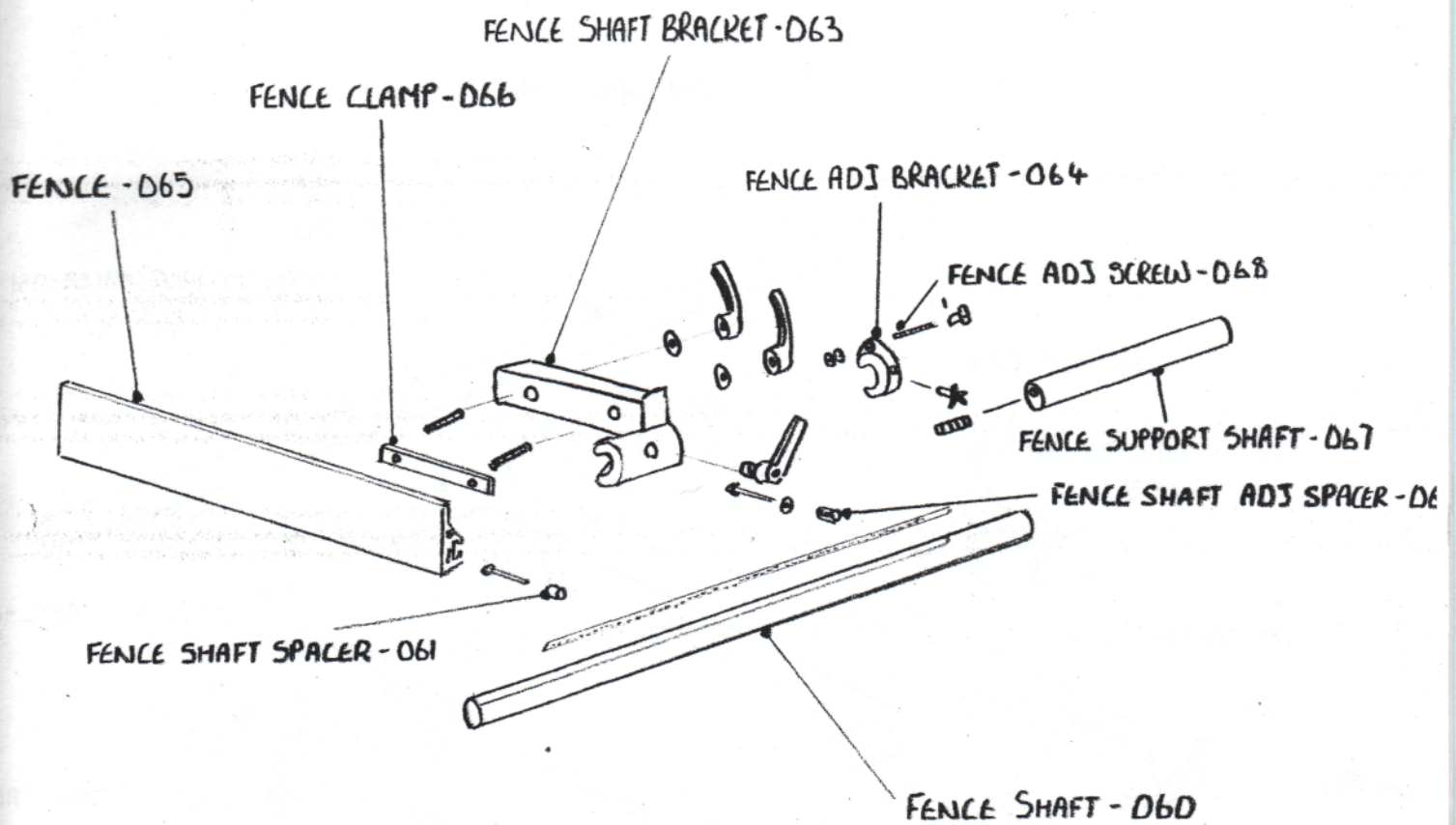
CRADLE BEARING HOUSING ASSEMBLY



RIVING KNIFE - SAWGUARD



FENCE



XCT TABLE - JIB

