



'WADKIN' HEAVY DUTY CROSS CUT SAW

MODEL XCS

M/C. No.
TEST No.

Instruction Manual



INSTRUCTION MANUAL

WADKIN

**HEAVY DUTY
CROSS CUT SAW**

MODEL XCS

PREFACE

**Health and Safety
Safeguarding machines**

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PREFACE

IMPORTANT

IT IS OUR POLICY AND THAT OF OUR SUPPLIERS TO CONSTANTLY REVIEW THE DESIGN AND CAPACITY OF OUR PRODUCTS. WITH THIS IN MIND WE WOULD REMIND OUR CUSTOMERS THAT WHILE THE DIMENSIONS AND PERFORMANCE DATA CONTAINED HEREIN ARE CURRENT AT THE TIME OF GOING TO PRESS, IT IS POSSIBLE THAT DUE TO THE INCORPORATION OF THE LATEST DEVELOPMENTS TO ENHANCE PERFORMANCE, DIMENSIONS AND SUPPLIERS MAY VARY FROM THOSE ILLUSTRATED.

THIS MANUAL IS WRITTEN AS A GENERAL GUIDE. DUE TO THE NUMBER OF VARIATIONS (OPTIONS) AVAILABLE ONLY THE BASIC SAW IS SHOWN TO ILLUSTRATE THE MAIN FEATURES.

HEALTH AND SAFETY

This machine is designed and constructed using the principles of safeguarding and practical guidance contained in the British Standard Codes of Practice BS5304: 1988 "Safeguard of machinery", BS6854: 1987 "Safeguard woodworking machines" and current guidance issued by the Health and Safety Executive.

The Health and Safety at Work etc Act 1974 places duties in designers, manufacturers and suppliers to ensure that:-

1. Articles supplied with for use at work are, so far as is reasonably practicable, safe and without risks to health during setting, use, cleaning and maintenance.
2. Persons supplied the articles are provided with adequate information about the use for which they are designed, and about conditions necessary to ensure that they will be safe and without risks to health.

These duties are transferred to you if you re-supply the machine by way of sale, lease, hire or hire purchase.

Person who install this machine for use at work have a duty under the Health and Safety at Work etc Act 1974, to ensure so far as is reasonable practicable, that nothing about the way in which it is installed makes it unsafe or a risk to health. This includes such aspects as correct assembly, electrical installation, construction of enclosures, fitting of guards and exhaust ventilation equipment. When installing the machine, consideration must be given to the provision of adequate lighting and working space.

The legal duties of designers, manufacturers, importers, suppliers, erectors and installers are explained in the free Health and Safety Executive leaflet IND(G)1(L) 1987.

The machine is supplied complete with all necessary safeguards to enable the user to comply with the Woodworking Machines Regulations 1974. Details of correct installation and use together with guidance on fitting and proper adjustment of guards are described in this manual.

You are reminded that the Woodworking Machines Regulations place absolute legal duties on employers and employees to ensure that guards and any other safety devices are securely fitted, correctly adjusted and properly maintained.

Repairs and maintenance must only be under taken by suitably qualified and competent technicians. Ensure that all power supplies are isolated before any maintenance work commences.

Machine operators must have received sufficient training and instruction as to the dangers arising in connection with the machine, the precautions to be observed and the requirements of the Woodworking Machines Regulations which apply, except where they work under the adequate supervision of a person who has a thorough knowledge and experience of the machine and the required safeguards.

Persons under the age of 18 years must successfully complete an approved course of training before operating this machine at work, unless participating in a course of training under adequate supervision. (N.B. this paragraph is only relevant to: circular sawing machines, any sawing machine fitted with a circular blade, any planing machine for surfacing which is not mechanically fed or any vertical spindle moulding machine).

Before commencing work, ensure that the cutters/blades are set in the correct direction, securely fitted, sharp, and are compatible with the machine and spindle speed.

Dust

Wood dust can be harmful to health by inhalation and skin contact and concentrations of small dust particles in the air can form an explosive mixture. These concentrations usually occur in dust extraction equipment which may be destroyed unless explosion precautions have been taken in the design and installation of the equipment.

Employees have duties under the Factories Act 1961 and the Health and Safety at Work etc Act 1974 to control wood dust in the workplace and from 1st October 1989 more specific requirements will be imposed by the Control of Substances Hazardous to Health Regulations 1988.

Employers should carry out an adequate assessment of the possible risks to health associated with wood dust to enable a valid decision to be made about the measures necessary to control the dust. It may be necessary to provide effective exhaust appliances.

Prevention or control of wood dust exposure should, so far as is reasonably practicable, be achieved by measures OTHER than the provisions of personal protective equipment.

Airborne dust levels should not exceed 5 mg/cub.m

Further information and reference to practical guidance are contained in the following free leaflets available from the Health and Safety Executive:-

Wood Dust	IND(S) 10(L) 1987
Hazards and precautions	IND(S) 21(L) 1988

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 persons 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.

An adequate assessment of likely noise exposure should be made using manufacturer's data and if necessary, a noise survey should be carried out by a competent person. It may be necessary to construct a suitable noise enclosure, in which case professional advice should be sought.

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 "Earprotection zones". Suitable warning signs are specified in the Safety Signs Regulations 1980.

Further information and reference are contained in the free Health and Safety Executive leaflet - Noise at Woodworking Machines IND(S) 22(L) 1988.

SAFEGUARDING MACHINES

To comply with the Woodworking Machines Regulations 1974, operators must ensure that they fully understand the instructions given and have received training in the use of the machine and the particular safety instructions to be observed.

NOTE: Persons under the age of 18 years must not operate the machine except under supervision during a course of training.

BEFORE OPERATING THE MACHINE ENSURE THAT:

All guards and fences are securely fitted and correctly adjusted in accordance with the Regulations.

Cutters/blades are the correct type and rotate in correct direction of cut, are sharp and securely fastened.

Correct spindle speed is selected for the cutter equipment.

Loose clothing is either removed or fastened and jewellery removed.

Suitable jigs and push sticks are available as appropriate.

Sufficient working space is provided and that lighting is adequate.

All dust extraction equipment is switched on, properly adjusted and working efficiently.

DURING MACHINING

Wear suitable protective equipment, e.g. goggles, ear defenders, and dust mask.

Stop the machine before making adjustments or cleaning chips from work area.

Keep the floor area around the machine clean and free from wood refuse.

Do not allow the floor to become slippery with oil or grease.

Report immediately to a person in authority, any machine malfunction or operator hazard. Do not attempt to repair the machine unless qualified to do so.

Ensure all power sources are isolated before commencing any maintenance work.

WARNING: Failure to comply with the Regulations is a criminal offence and could result in legal proceedings.

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SPECIFICATION

Maximum cutting capacity	200 x 150mm (option) 225mm x 125mm
Saw diameter	500mm
Spindle diameter	30mm
Spindle speed	2870 rpm
Drive motor	7.5kW (10hp)
Air requirement	6 bar (80 psi)
Dust extraction requirement	11 cum/min
Hydraulic data	see hydraulic section

Due to the variety of table and ejector layouts, only the basic saw specifications are given. It is impossible to give details of each machine and the user is referred to Wadkin for this information.

INSTALLATION

LIFTING AND TRANSPORTATION

Verify the weight of the machine (see installation data). Ensure that all lifting equipment used is capable of lifting this weight as a minimum.

To lift the machine place a sling through the lifting eyes located on top of the main frame ensuring the main saw guard is down and locked.

In the process of moving avoid jolting or vibrating the machine.

Undo the packing and make sure that damage has not occurred during transit. Open any cases containing accessories and ascertain that all fittings within are complete.

CLEANING

Before levelling the machine carefully remove the anti-rust material particularly from the bright parts. Clean the machine with paraffin or diesel and a soft rag. Do not use a substitute - it may precipitate an explosion.

INSTALLATION DATA

Overall dimensions of basic machine

Height	1550mm
Depth	1250mm
Width	1200mm
Weight	1250kg

LOCATION AND FOUNDATIONS

To obtain the best result from the 'Wadkin' woodworking machine it is important that the floor on which the machine is to stand has been prepared and is dry. Place the steel plates provided with the machine under the adjustable levelling screws.

Initial levelling may be achieved by placing a spirit level on top of the main machine body near the lifting eyes. Once the infeed and out feed tables have been offered up and levelled the saw may be finally adjusted to ensure the saw blade is perpendicular to the tables.

If the floor consists of 100 - 150mm of solid concrete no special foundations will be required. M16 'HILTI' type holding down bolts (not supplied with the machine) may be used to secure the machine to the floor.

NOTE: THE MACHINE MUST BE SECURELY BOLTED DOWN BEFORE USE

SUPPLIERS AND SERVICES

The customer is responsible for an adequate electrical supply. Details of power requirements are provided with the machine.

The machine is delivered with its complete electrical equipment ready for connection.

The electrical connection and schematic diagram are found in the electrical control cubicle of the machine. All that is required is to connect the power supply to the isolator switch at the electrical control cubicle.

POINTS TO NOTE WHEN CONNECTING THE POWER SUPPLY

Check voltage, phase and frequency correspond with those on the machine nameplate details.

Check the main fuses are of the correct capacity in accordance with the machine nameplate details.

Connect the incoming supply leads to the appropriate terminals.

Check all connections are sound and that equipment is earthed.

Check spindle rotation is in the correct direction.

IMPORTANT: ANY ELECTRICAL MODIFICATIONS SHOULD BE CARRIED OUT BY A COMPETENT ELECTRICIAN

PNEUMATICS

To make the system operative connect up the air pipes and fittings to a suitable air supply.

The size of the air inlet connection is 1/4" B.S.P. female

Pressure required is 6 bar approx. (90 psi)

Air consumption is approximately 200 cu. dm/hr (7cu feet/hr)

EXHAUST CONNECTIONS

The rear horizontal extraction pipe has a diameter of 114mm.

The top extraction nozzle is normally supplied by the extract equipment supplier and should be made to fit over an opening 70mm x 85mm, with a fluid diameter of 114mm.

The flow rate of air to each exhaust hood should be approximately 23 metres per second.

The volume of air required per exhaust hood is 14 cubic metres/min.

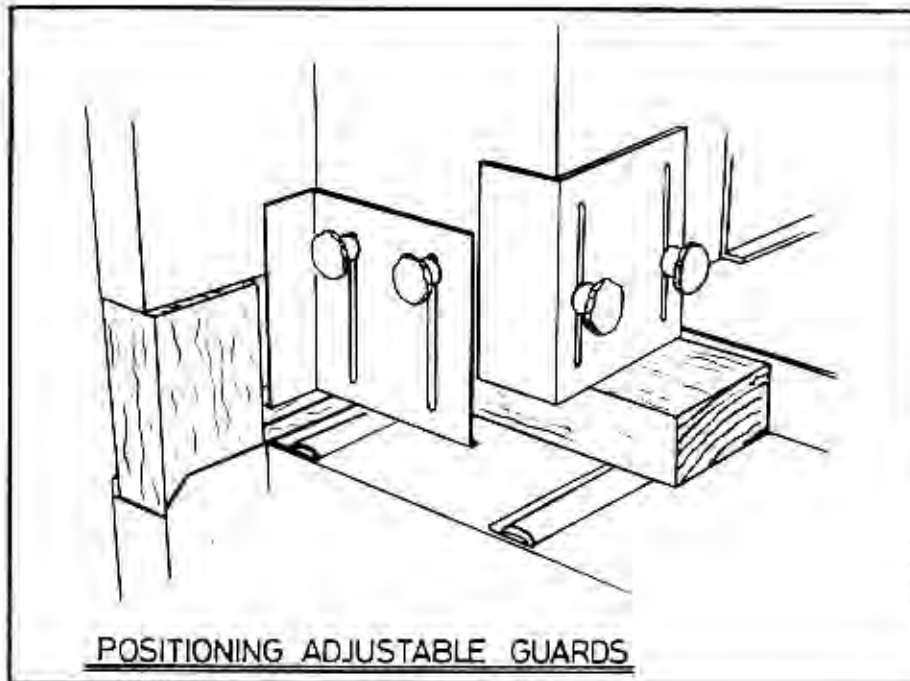
ELECTRICS

Refer to wiring diagram in book.

OPERATING INSTRUCTIONS

GENERAL USE

Before commencing to cut timber a sample piece should be fed under the saw and the adjustable guards positioned such that they clear the work piece by approximately 5mm or where the guards will be clear of the timber they should be positioned just above bed level.



The saw may be started by pressing the green button located on the control unit only when the main guard is in the fully closed position.

Movement of the hydraulically operated plunge action of the saw is via a foot operated pedal. This pedal is protected by a toe kick plate safety switch. Unless this plate, at the rear of the pedal, is pushed backwards by the operators toe the pedal will not work. Constant pressure must be applied to the pedal for the saw to complete a plunge cut/return cycle. Removal of pressure before the cut will return the saw arm to the raised position. Applied pressure to the pedal will only produce one cut cycle, therefore to initiate subsequent cut cycles pressure must be released after a completed cycle and re-applied.

To stop the saw press the red button. After a built in time delay the yellow light will illuminate to indicate that this button may be used to release the safety lock on the main guard cover prior to opening.

LUBRICATOR (if fitted)

OPERATION AND SERVICE

1. FILLING - Disassembly of the oil fill plug removes and vents the bowl pressure and allows filling without shutting down the air supply line. Fill to visible rim of the bowl with oil of 4.5 degrees - 5.5 degrees E at 50 degrees C viscosity - same as SAE No 10 (petroleum base hydraulic oils or spindle oils are good examples).

NOTE: DO NOT USE OILS WITH ADHESIVES OR TACKY ADDITIVES. COMPOUNDED OILS CONTAINING SOLVENTS, GRAPHITE, SOAPS, OR DETERGENTS (AUTO MOTIVE OILS GENERALLY CONTAIN DETERGENTS) ARE NOT RECOMMENDED.

2. Replace the fill plug and seat firmly. Excessive torque is not necessary. The lubricator is now ready for setting.
3. OIL DELIVERY ADJUSTMENT - To adjust oil delivery, use a slotted screwdriver to turn the adjusting screw in the top of the lubricator.

LEANER - Clockwise

RICHER - Counter - clockwise

By counting the number of drops per minute in the sight dome, you can adjust to your requirements. Generally, one drop per minute for every 300-400 L/min. flow is satisfactory.

25 drops per minute equals 30 g/hr.

NOTE: This is a constant density type lubricator which delivers a constant ratio of oil to air flow. Therefore, if air flow increases or decreases, oil delivery will be adjusted proportionately. ONLY IF A DIFFERENT RATIO IS DESIRED NEED YOUR NEEDLE VALVE SETTING BE CHANGED AFTER YOUR INITIAL SETTING.

CAUTION

Polycarbonate bowls being transparent and tough, are ideal for use with Filters and lubricators. They are suitable for use in normal industrial environments, but should not be located in areas where they could be subjected to an impact blow, nor temperatures outside of the rated range. As with most plastics some chemicals can cause damage Polycarbonate bowls should not be exposed to chlorinated hydrocarbons, ketones, esters, and certain alcohols. TO CLEAN POLYCARBONATE BOWLS USE MILD SOAP AND WATER ONLY! DO NOT use cleaning agents such as acetone, benzene, carbon tetrachloride, gasoline toluene etc, which are damaging to this plastic.

They should not be used in air systems where compressors are lubricated with fire resistant fluids such as phosphate esters and di-ester types. In areas where polycarbonate bowls are exposed to high temperature or atmospheres containing vapours or fluids which are damaging to plastic, use metal bowls

Metal bowls resist the action of most such solvents, but should not be used where strong acids or bases are present or in salt laden atmospheres. Consult the factory for specific recommendations where these conditions exist.

Bowl guards are recommended for use with polycarbonate bowls.

FILTER / REGULATOR (If fitted)

OPERATION AND SERVICE

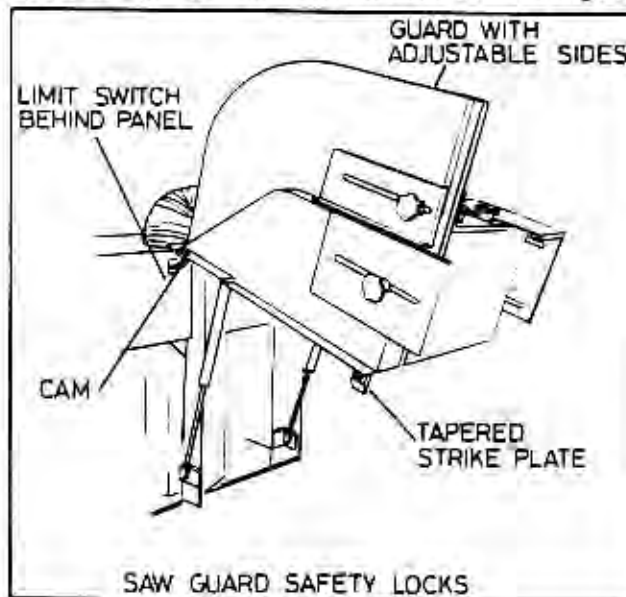
1. Both free moisture and solids are removed automatically by the FILTER / REGULATOR.
2. An automatic drain is fitted to the Filter / Regulator.
3. The filter element can be removed when necessary and should be washed in the same solution as the transparent bowl (refer to lubricator : caution section). Blow compressed air from inside the element outward after washing. When dry, re-install, making sure to replace all gaskets, each in its proper place.
4. To remove the filter element; SHUT AIR LINE DOWN and exhaust secondary pressure.
 - a. Unscrew threaded bowl.
 - b. Disassemble cartridge assembly by unscrewing lower baffle.
 - c. Remove element for servicing.
 - d. Replace element and reassemble.
5. BEFORE TURNING ON AIR SUPPLY, TURN ADJUSTING HANDLE COUNTER - CLOCKWISE UNTIL COMPRESSION IS RELEASED FROM PRESSURE CONTROL SPRING. Adjustment to desired downstream pressure can be made only with primary pressure applied to the regulator. Regulator then acts as shut-off valve. Turn on air pressure. Then proceed to adjust to desired downstream pressure by turning adjusting handle clockwise. This permits pressure to build up slowly preventing any unexpected operation of valve, cylinders, tools, etc. in the line.
6. To increase regulated pressure, turn adjusting handle clockwise. Adjustment can be made either with or without air flowing. It is desirable to make the adjustment to required pressure under typical operating conditions. When desired setting has been reached, lighten locknut securely.

The FILTER / REGULATOR is self-relieving unless specifically ordered otherwise. Therefore it is not necessary to "blow-down" the secondary lines by exhausting them. To lower setting, always reset from a pressure lower than the final setting desired. For example: lowering the secondary pressure from 6 bar to 4 bar is best accomplished by dropping the secondary pressure to 3 bar or less, then adjusting UPWARD to 4 bar.

8. Before disassembling FILTER / REGULATOR, SHUT OFF AIR SUPPLY. The regulator may be serviced without removing it from the line. Turn the adjusting handle counter-clockwise to bleed down trapped pressure. For servicing piston or control springs unscrew bonnet from body. For servicing the poppet and relief tube remove threaded bowl and filter element cartridge assembly.
9. Clean and carefully inspect parts for wear or damage. If replacement is desired, service kits are available. When reassembling Filter / Regulator, be sure to replace parts in their correct order. If unit does not function properly, recheck the assembly using the parts exploded view information as a guide.

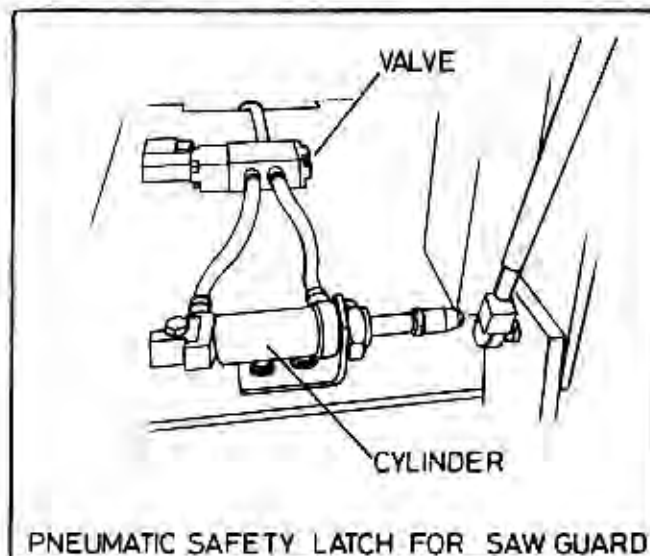
SAW GUARD SAFETY LOCKS

With the main saw guard in the open position, a cam on the top left or right hand corner compresses the plunger on the limit switch disabling the machine. When the guard is closed the plunger extends and the machine is again ready for use.



At the same time on closure of the main saw guard, a tapered strike plate forces a plunger on a double acting pneumatic cylinder back against the air pressure until when fully closed, the pressure forces the plunger to locate into the hole in the strike plate. This locks the guard in the closed position and may only be opened by pressing the yellow button on the control panel.

If the machine has been in use a factory set time delay after operating the stop button, prevents immediate use of the yellow button. The delay is to allow the blade to come to rest, at which time the yellow button will illuminate to indicate it may be used.

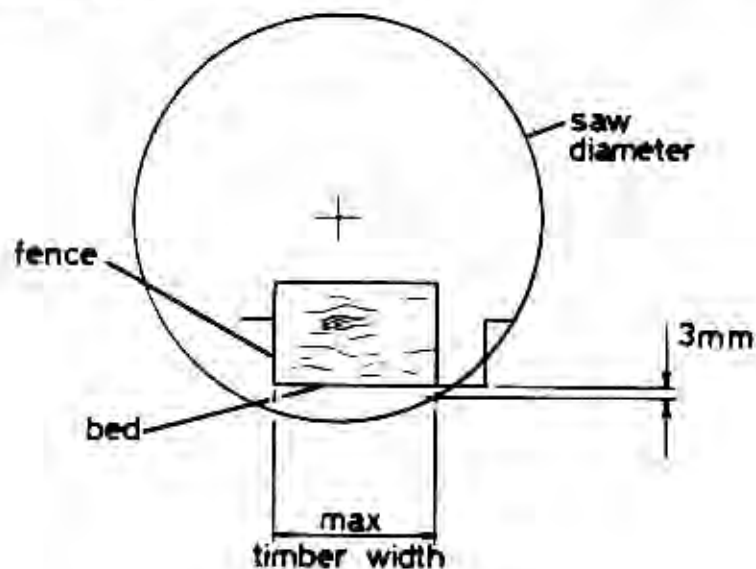


ADJUSTING SAW ARM STOPS

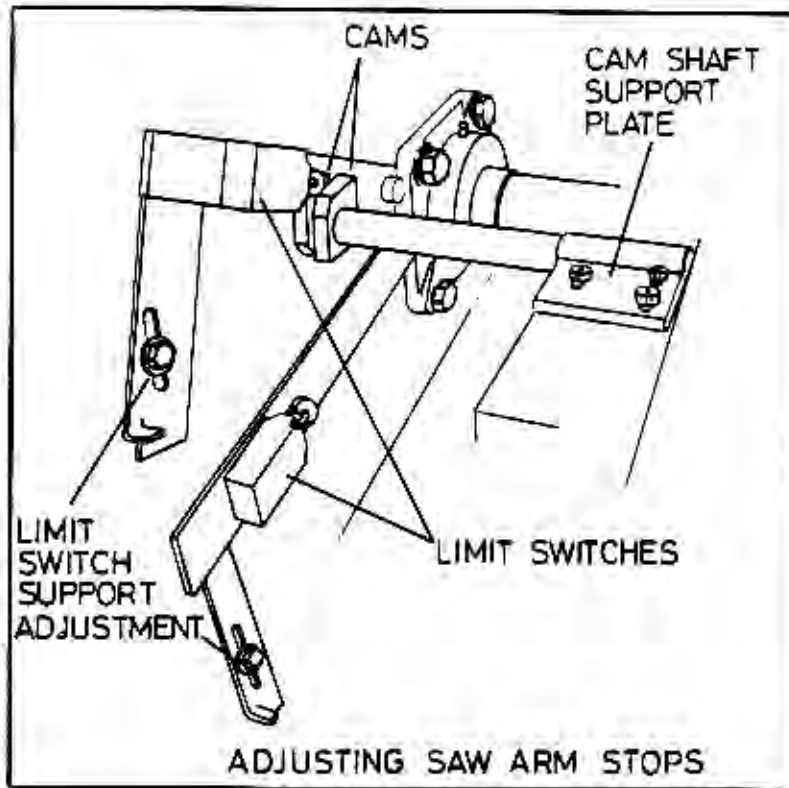
The limit switches for the saw arm are factory set and should not normally require adjustment.

The saw when raised, should be within the confines of the adjustable side guides when set to allow the maximum timber size to be cut.

When in the cutting position the blade should protrude approx 3mm below the bed at the maximum timber width (see illustration).



Position the saw arm in the required position and if necessary support the arm at the rear. Before adjusting the limit switch settings first ensure the machine is isolated from the mains. Adjustment is provided at the cams, the cam shaft support plate and also at the pivoting limit switch supports.



MAINTENANCE

ROUTINE MAINTENANCE

Periodically clear the saw dust and waste from in and around the machine.

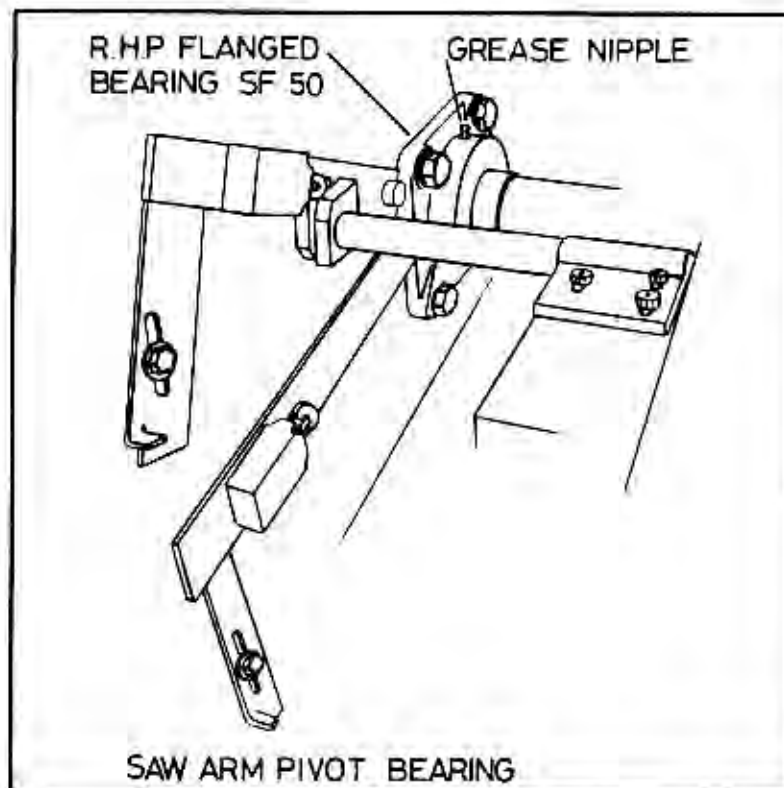
Check the oil level in the lubrication bottles. Re fill if necessary with L1 oil.

Check the tension of the drive belts at approximately three monthly intervals, otherwise the drive is maintenance free.

Grease saw arm pivot bearings at intervals of between ten and twelve months with a Wadkin grade L6 grease (see tables for specification).

Check and top up hydraulic oil level in tank with L1 oil (see tables for specification)

The drive motor has sealed for life bearings and is therefore maintenance free.



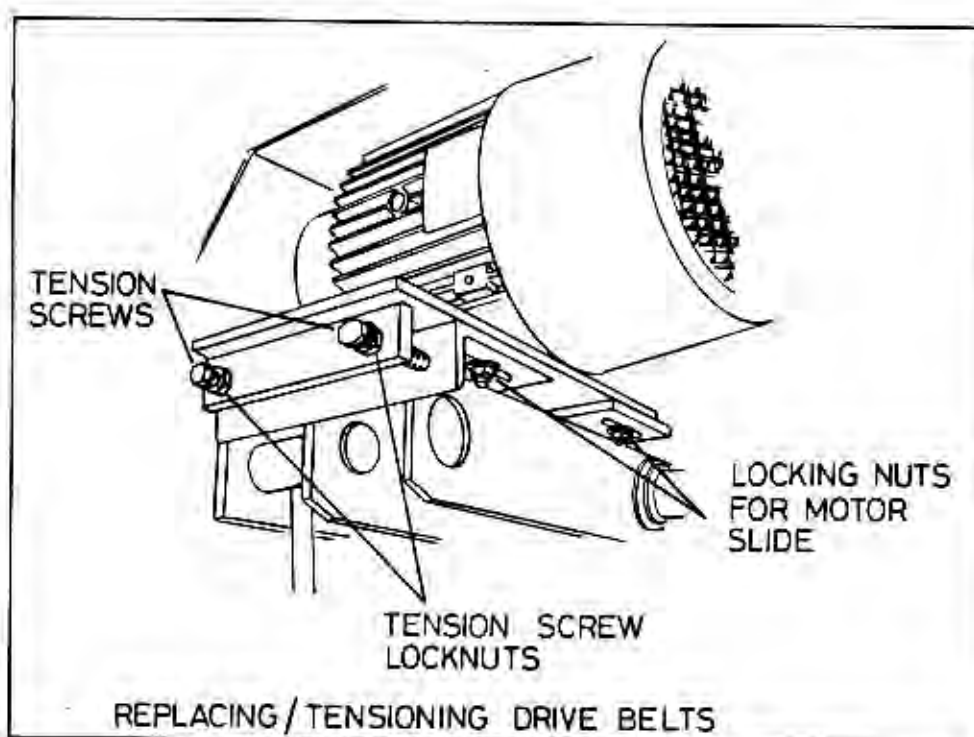
REPLACING / TENSIONING DRIVE BELTS

Drive belts must be replaced as a set to obtain correct drive performance.

1. Slacken off the lock nuts on the tension screws
2. Slacken off the two motor mounting slide locknuts
3. Turn the tension screws anti-clockwise until the motor mounting slide can be pushed forwards.

Note: Belts of the same size, type and reference should be used (see table section).

4. With the belts fitted pull the motor mounting slide back and tighten tensioning screws. The correct tension is when the belt is capable of being depressed approximately 15 to 20mm by application of average thumb pressure at a point mid way between pulleys.
5. When the belts are taught lock up slide locknuts and tension screw locknuts.

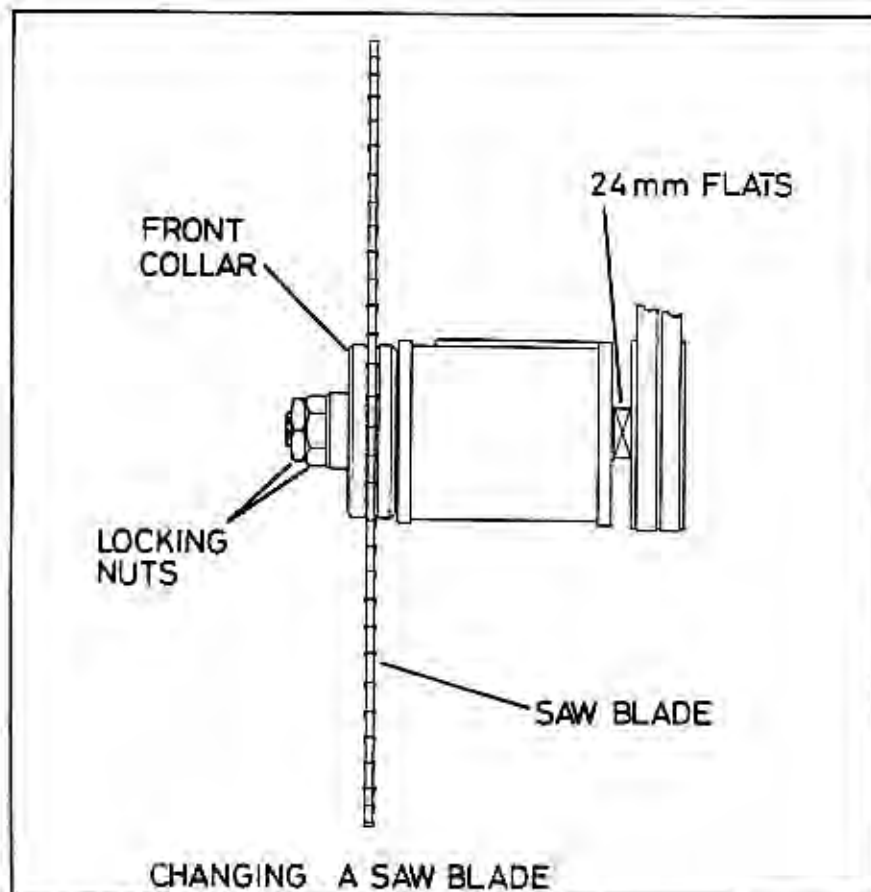


CHANGING SAW BLADES

1. Position the saw arm such that the blade is just out of the wooden anvil, support arm if necessary.

Note: Before commencing to change the blade ensure machine is isolated from the mains.

2. Place a 24mm A/F spanner on the flats of the spindle shaft just behind the pulley. Holding the spanner securely unscrew the two lock nuts and remove the front collar. The saw is located on the spindle shaft and a drive peg.
3. Remove the saw taking suitable care/protection when handling the blade.
4. Fit new sawblade ensuring the blade is in correct orientation.
5. Refit collar and tighten locknuts.
6. Check that blade is clamped between collars.



SAW SPINDLE BEARINGS REPLACEMENT

Depending on spindle rotation the two nuts holding the saw collar onto the shaft may be right or left hand.

Before fitting a new bearing, the protective lubricant must be meticulously removed with petroleum spirit, triethanolamine or other volatile solvent.

In order to prevent the moving parts from being damaged by drying out due to over cleaning, add a small amount of the bearing lubricant to the cleaning agent at the second bath. The film of grease which remains after the solvent has evaporated will provide protection for the bearing until charged with lubricant.

The new bearings should be charged with 'Kluber' lubricant type 'Isorex' NUB15. It is important that the correct amount of grease is applied preferably using the formula:-

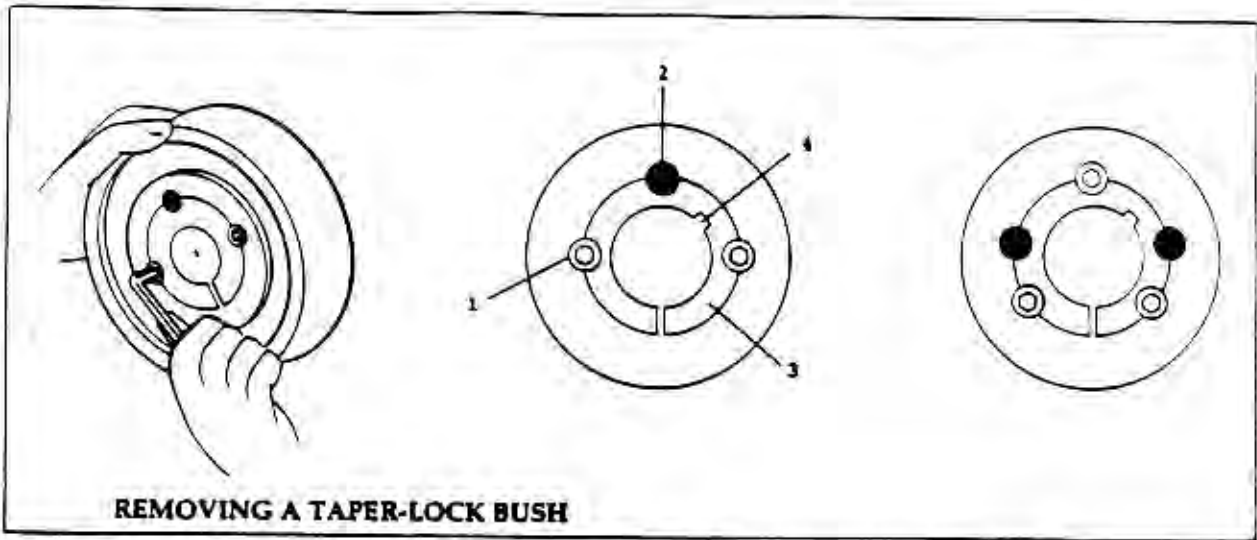
$$G \text{ (weight in grams)} = d \times B \times 0.01$$

Where d = bore of bearing in mm
 B = width in mm

This is approximately sufficient to fill one third of the bearing volume.

To remove the bearings

1. Remove the saw blade (see changing saw blades) and also the drive belts.
2. Remove the pulley and taper lock bush and proceed as follows.
 - a. Slacken off all screws (1) several turns using a hexagonal key. Remove one or two screws according to number of jacking holes (2).
 - b. Insert screws in jacking holes after oiling thread and point of grub screws, or thread and head of cap screws, as applicable.
 - c. Tighten screws (1) alternately until bush (3) is loosened in pulley hub and assembly is free on shaft.
 - e. Remove pulley assembly from shaft.
3. Unscrew the capscrews and remove the now exposed end cap.
4. Flatten down the tab on the lock washer and remove this and the notch nut.
5. The spindle complete with rear saw collar should now be free to pull out from the saw end.

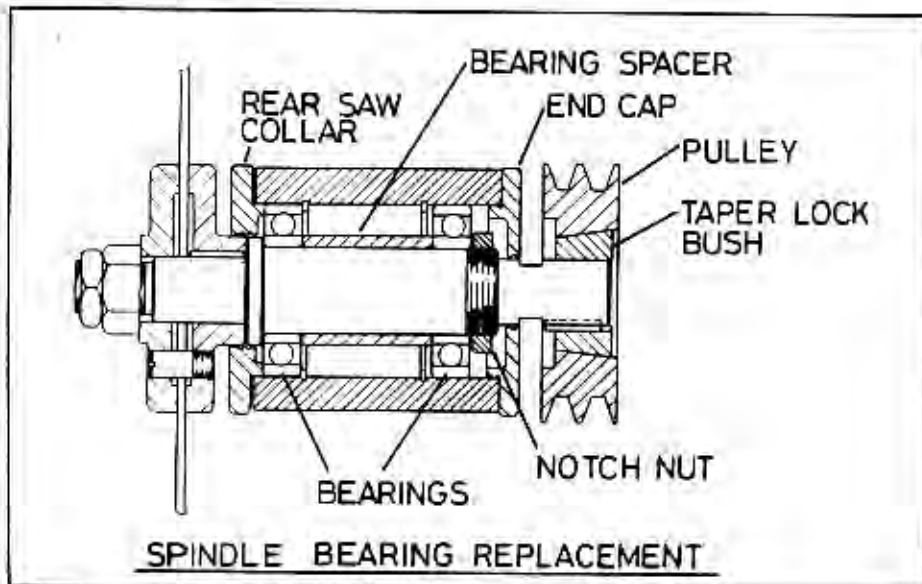


REMOVING A TAPER-LOCK BUSH

6. Unscrew the four capscrews and remove the end cap from the saw end.
7. Remove the bearings, wavey washer and bearing spacer.
8. Inspect shaft and bore for wear/damage.
9. After preparation fit new bearings and wavey washer. Use only sufficient pressure to fit bearings, applying pressure to the inner ring only. Ensure that the bearing at the saw end fits tightly up to the shoulder on the spindle. Fit bearing spacer onto spindle and then assemble unit in saw arm bore.

Fit new bearing and washer in at pulley end ensuring this fits tight up to bearing spacer.

10. Refit remaining tab washer, notch nut and end caps. The end cap nearest the saw blade should be tightened until a gap of approximately 0.004" (0.1mm) exists between cap and arm.



11. Refit the pulley assembly as follows:-
 - a. Ensure that mating taper surfaces between bush and pulley are completely clean and free from oil or dirt. Insert bush in hub and line up screw holes.
 - b. Oil thread and point of grub screws, or thread and head of cap screws. Place screws loosely in threaded holes in hub of pulley.
 - c. Clean shaft, fit hub and bush to the shaft as a unit. Locate in position. On fitting, the bush will nip the shaft first, then hub will be drawn onto bush.

Note: It is necessary to axially align drive and driven pulleys.

 - d. Using a hexagon key, alternately tighten screws until all screws are pulled up securely. Using a short length of pipe on key to increase leverage.
 - e. After the drive has been running under load for a short time, stop and check tightness of screws. Tighten if needed.

Fill empty screw holes with grease to exclude dirt.

12. Refit belts and saw.

TABLES

APPROVED LUBRICANTS

WADKIN	CASTROL	B.P.	SHELL	MOBIL	ESSO	GULF	CALTEX
L1	Hyspin AWS	Energol HLP 32	Vitrol 32	DTE Oil Light 24	Nuto 44 or Esstic H44	Harmony 43 AW	Rando Oil HDA
L6	Spheerol AP3	Energrease LS3	Alvania Grease No 3	Mobilplex Grease No 48	Beacon 3	Gulfcrown Grease No 3	Regal Startak Premium 3

L1 Oil Hydraulic oil with anti-corrosion, anti oxidation, anti-wear, anti-foam performance

L6 Grease Grease NLG1 No 3 consistency lithium bearing grease

MOTOR AND DRIVE BELT DATA

Motor 50 hp			Motor Pulley		Taper Lock Bush		
Frame Size	K.W	H.P	Fenner Ref.	Wadkin Code	Bore M.M.	Fenner Ref.	Wadkin Code
D132	7.5	10	031A0182	K3077893	38	1610	K3077186

Spindle Pulley		Taper Lock Bush			Spindle Speed
Fenner Ref.	Wadkin Code	Bore M.M.	Fenner Ref.	Wadkin Code	R.P.M
031A0162	K3077892	30	1610	K3077890	2970

Belts		
Fenner Ref.	Wadkin Code	Quan
SPA1600	K3077891	2

HYDRAULIC SECTION

SPECIFICATION

The hydraulic power pack has an output of approximately 9 liters per minute at 550 p.s.i. and consists of the following items.

1. Drive motor (flange mounted)

Output	0.7 kW (1.0 hp)
Speed	1500 r.p.m.
Voltage	415V
Phase	3 ph
Frequency	50 hz

The motor is mounted to the gear pump via a belt housing and flexible coupling.

2. Relief valve BS06.10.C3.
3. Double solenoid valve MD06 , 202, 110 volts, 50 hz
4. Dual flow regulator AM06, QF, AB mounted on item 5.
5. Oil resevoir 25 litre capacity (recommeded oil DTE 24).
6. Clear window oil level sight.
7. Filler cap.
8. Suction strainer and filter.

The other major item used in the system is the saw arm cylinder.

Bore	25.4mm (1 inch)
Stroke	158.75mm (6 1/4 inch)
Piston rod dia.	15.875mm (5/8 inch)

It should be noted that the piston rod is tapped M10 x 20mm with a tommy bar hole and the 40mm dia. cylinder rear end has a 12mm dia. reamed hole.

HYDRAULIC SYSTEM

Points to note when replacing, repairing or cleaning the system:-

1. Ensure that all external pipework installed between power pack and other equipment, i.e. cylinders, motors or valves, is absolutely clean and free from scale or burns which may become loose with a flow of oil. Remember, a scored cylinder barrel or damaged motor can necessitate a very expensive replacement exercise.
2. Use compression type fittings, and ensure that tube and hoses used are adequate for the oil flow and systems pressure specified. Ensure that oil return lines are of sufficient size to handle a flow rate which during part of the operating cycle, may be greater than the output of the pump. A restricted return line may cause sluggish operation, overheating, damage to return line filters and coolers, or malfunctions of valves incorporated in the system.
3. Ensure that cylinder bleed points if incorporated, or alternatively the port connectors, and hydraulic motor drain connections are facing upwards.
4. Where a return line filter, and/or cooler is fitted to the power pack these are normally in series between the return line bulkhead and reservoir. If fitted externally, ensure that all main return lines pass back through cooler and filter, but it is advisable for hydraulic motor "drains" and external "drains" from valves to be piped direct to the reservoir via the separate bulkhead provided on the power pack.
5. Make electrical connections to electric motor via the starter or control box if supplied. Where the customer is wiring to the motor, a wiring diagram is normally located inside the motor terminal box. Ensure that motor is connected to give correct direction of rotation. Electric motor may be dual voltage type; ensure that connections made are appropriate to the particular power supply.
6. Make electrical connections between electrical supply, control boxes relays, pressure switches or contactors, etc. and to any electrically operated valves in the system.
7. Where an accumulator is incorporated in the system, check that this is charged with nitrogen to the pre-charge pressure specified on the circuit diagram. Owing to regulations pertaining to carriage of certain types of pressure vessels, an accumulator fitted to a system has not necessarily been charged prior to despatch. If already pressurised, an indicating label is attached.
8. Fill reservoir with recommended hydraulic fluid, ensuring that the strainer gauze is in situ and undamaged in the filler cap recess. N.B. Should unit have been supplied for use with special fluid, ensure that topping up is with similar fluid and compatible with the numerous oil seals in the system.
9. Unless pressure relief valves have been set to a pre-determined pressure and locked in position, adjust relief to minimum pressure.

10. Before starting system, make a final check that all external pipework connections have been tightened and that control valves are in the neutral position. **WHENEVER POSSIBLE**, particularly where expensive cylinders and motors have been installed, it is advisable to break the connections to these items and make temporary connection of flow and return pipework until the system has been adequately flushed and any foreign particles in the system are trapped by the filters.
11. Pumps which are situated above the reservoir oil level should be primed before running to ensure that they are adequately lubricated before rotating at speed. Failure to do this may cause immediate damage to the pump.
12. Ensure that any isolating valve between the reservoir and pump inlet has been fully opened.
13. Pumps fitted externally but which are gravity fed, do not require priming, but in the case of radial piston pumps it is necessary to bleed off air by loosening off the cylinder cap screws; tighten as soon as air has escaped and oil is running freely. With axial piston pumps with drain connection, it is advisable to fill the pump case with oil at the drain connection.
14. Start system and screw in relief valve adjusting screw only sufficiently to ensure that oil is circulating. Allow to run for a minimum period of five minutes off load, and if cylinders and hydraulic motors have been removed from the circuit, operate directional control valves to ensure that system is completely flushed.
15. Check filters and clean or replace elements as necessary.
16. Reconnect cylinders and motors into the circuit, and further adjust relief valves to obtain an operating force. Bleed air from cylinder ports and other points where it is possible that air may be trapped, by loosening connectors and allowing air to be forced out. Tighten connections when all air has escaped and only oil has commenced to leak from the joints.
17. Adjust pressure relief valves to pressures indicated on circuit diagram and lock in position.
18. Check for leaks and tighten connections as necessary.
19. Check oil levels and top up to high level replacing oil which has been utilised in filling the system. If system is operating single acting cylinders or double acting cylinders (normally with an area differential) ensure that cylinders are in the retracted position prior to topping up, and check that when extended, there is sufficient oil remaining to adequately cover suction strainers or pump inlets.
20. Make final adjustments to pressure relief and speed control valves as necessary to perform the operations and sequences intended.
21. Tighten lock nuts of all adjusting screws, and preferably, seal to avoid tampering.

FAULT FINDING IN THE HYDRAULIC SYSTEM

SYSTEM DEVELOPES NOISE, LOCATED IN THE AREA OF THE PUMP

Switch off system immediately. Check oil level in reservoir. Remove pump and plug the outgoing pipework to avoid excessive oil loss from the system. Check that pump/motor coupling is correctly fitted. If satisfactory run electric motor without the pump to check if noise is from the motor. If satisfactory, pump is faulty and must be stripped and repaired, or replaced.

IMPORTANT

If, on checking the faulty pump, there is evidence that particles of metal from the pump may be in the system, check at the pressure filter and clean or replace element. Should there be no pressure line filter, it will be advisable to flush the system through with cylinders, motors etc. likely to sustain damage, removed from the circuit.

COMPLETE FAILURE. SYSTEM FAILS TO DEVELOP PRESSURE

Switch off system. Cause is most likely pump failure or main system pressure relief valve jammed in the open position. Disconnect relief valve from system and dismantle; check that main spool and pilot spool where applicable, are free moving. Check that no damage has occurred, reassemble and refit to system. Restart system and check for pressure.

If still no pressure, with pump running, disconnect return line connector near to reservoir and check for oil flow. Should there be an oil flow, it is possible that a valve in the circuit, directional control, sequence or unloader, has jammed in a position to give oil flow to reservoir. Switch off system. Dismantle valves, check and rectify as necessary and refit. Re-make all connections and restart.

IMPORTANT

When it is necessary to remove items from the system, particularly if there is part of the system above the level of the item to be removed, it is advisable to have ready suitable plugs to temporarily block off connecting pipework. This will prevent excessive loss of oil, and ingress of dirt and air. It may still be necessary on restarting to bleed air from the system. Ensure that any plugs used are perfectly clean and that subplate or manifold surfaces are suitably covered on removal of valves. Ensure that oil 'O' seals are correctly in place when refitting valves.

PARTIAL FAILURE - INSUFFICIENT PRESSURE DEVELOPED

Switch off system. Break connections on outgoing system side of pressure relief valve and plug off at relief, effectively leaving only the pump and relief valve in the circuit

ON NO ACCOUNT SHOULD THE CIRCUIT BE BLOCKED AT THE OUTLET OF THE PUMP

Ensure that a pressure gauge is connected to the pump/relief pressure circuit. Start system, and check if required pressure is registered. If insufficient pressure obtainable by adjustment of the relief adjusting screw, shut off system. Carry out check and any necessary rectification to pressure relief valve as previously detailed.

If there was no apparent fault and still insufficient pressure, carry out check and any necessary rectification to pump as previously detailed. Re-adjust and lock relief at required pressure. Switch off system, remove plug from relief pressure outlet, remake connections and restart system.

If sufficient pressure is obtainable at this point, the fault is elsewhere.

Switch off system, remake connections at pressure relief valve, and disconnect cylinders and/or hydraulic motors from system. Plug the system pipework at this point and restart system. Select any directional controls as if to operate cylinders or motors, and check pressure obtainable on gauge. If sufficient pressure is registered, the fault is in the cylinder or motor. A leaky cylinder piston seal can be detected by pressurising to full stroke and checking leakage at the opposite port. Replace cylinder seals or return to supplier for rectification. An inefficient motor is less easy to diagnose; on no account should the motor outlet port be blocked. Return motor to supplier for rectification.

If required pressure cannot be obtained, it will be necessary to check other valves in the system for damage or wear resulting in an excessive leakage to the low pressure return side of the system.

Either dismantle and check each valve, or by a process of elimination, block off parts of the system working outwards from the relief valve until the fault is located. When faulty valve is located return to supplier for rectification or replace with new item.

IMPORTANT

When blocking lines to trace a fault, it is essential that return lines remain connected. Failure to do this may result in damage to valves, motors or cylinders, and possible burst lines or equipment due to pressure intensification from the cylinder

Electrical faults should be diagnosed and corrected by a fully qualified person.

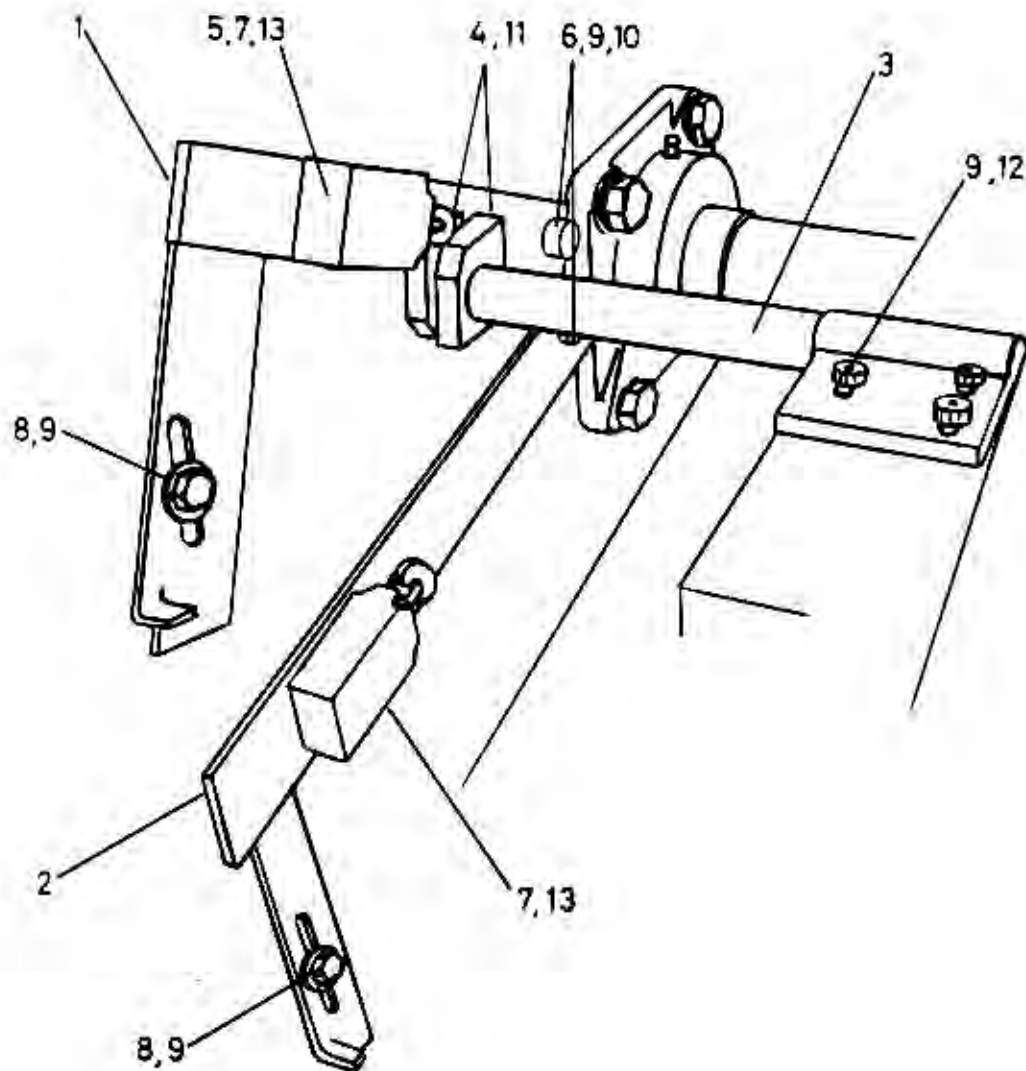
MAINTENANCE

1. All fixing bolts coupling pump to prime mover and prime mover to base or reservoir to be checked and tightened where necessary.
2. Check hoses for external damage and possible bulging under pressure. Replace worn hoses.
3. Check for oil leaks in system and tighten pipelines connectors where necessary.
4. Check that any pressure gauges in the system are functioning and zeroing correctly and that pressure relief valves have not been reset above pressure recommended for system.
5. Check reservoir oil level and top up as necessary, using recommended fluid.
6. Check visual indicator on pressure and return line filters and replace elements if indicator is on danger level or likely to reach danger prior to next scheduled service check.
7. Remove end caps from mechanical or manual directional control valves, fill with grease and refit.
8. With power supply disconnected, check electrical connections and wiring for adequate insulation. Check switches and contactors, relay points etc., clean or replace components as necessary.
9. EVERY TWELVE MONTHS or more frequently if operating in poor environment, drain oil from reservoir, check and clean suction strainers and flush out reservoir. Check quality of hydraulic oil before refilling and replace if necessary.
10. BEFORE RESTARTING SYSTEM ensure that any isolating valve between the reservoir and pump has been fully opened to allow oil flow to the pump.
11. Special attention should be paid to the hose or connecting pipework between reservoir and pump. A fault due to a damaged hose or loose connections will allow air to be drawn into the system when it is operating, and very quickly damage the pump.
12. If it is necessary to remove an accumulator from the system, ensure that oil is already discharged.

ILLUSTRATED PARTS LIST

CONTENTS

Saw arm stops
Saw spindle assembly
Saw guards and associated parts
Pneumatic safety latch for saw guard
Hydraulic components

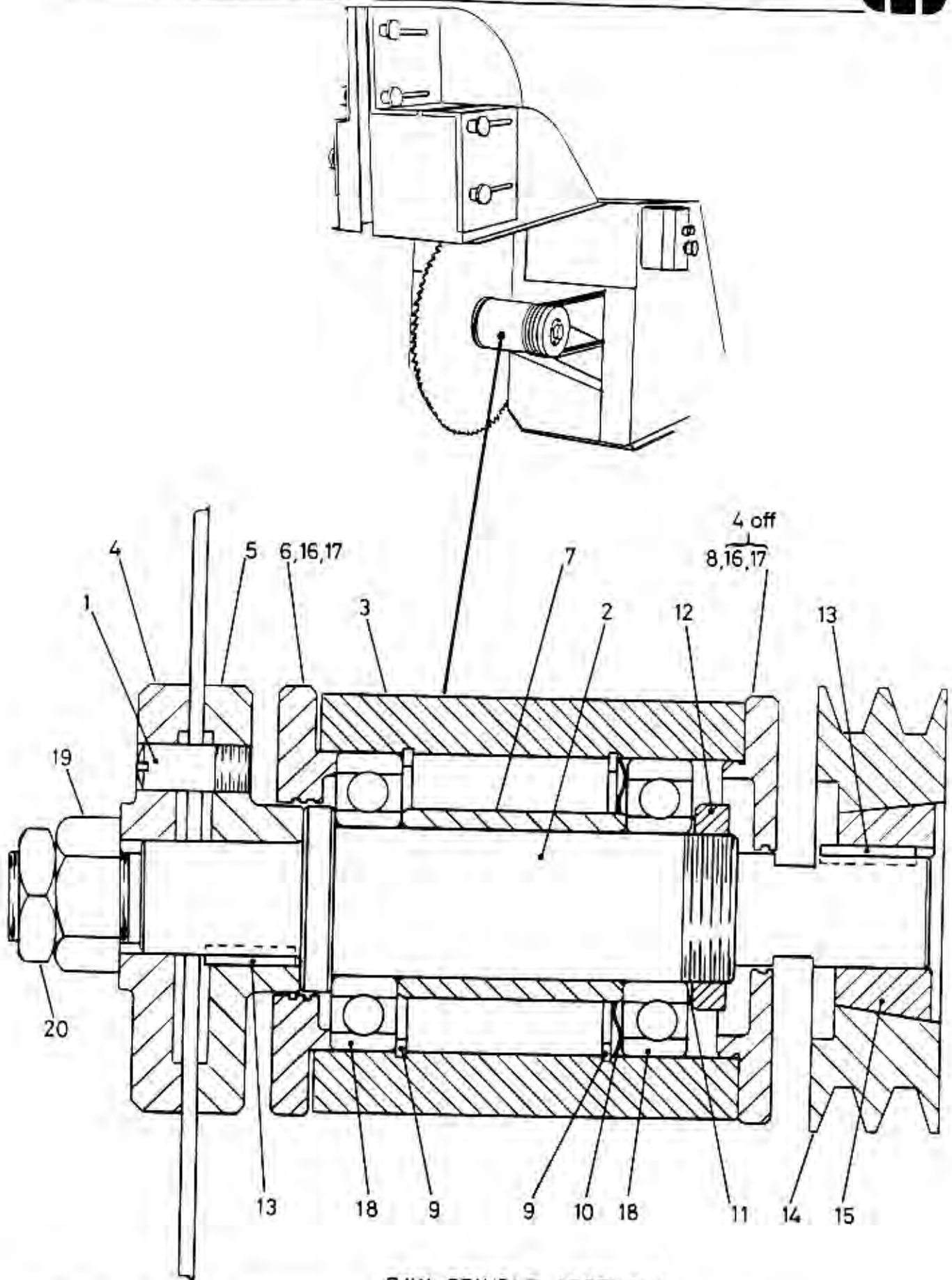


SAW ARM STOPS

SAW ARM STOPS

Ref	Description	No. Off
1	Limit switch top bracket	1
2	Limit switch bottom bracket	1
3	Cam spindle	1
4	Cam	2
5	Limit switch packer	1
6	Bush	2
7	Steel roller plunger limit switch 'Telemecanique' A102.2	2
8	Hexagon head setscrew M6 x 16mm long	2
9	Plain washer M6	7
10	Hexagon head setscrew M6 x 20mm long	2
11	Hexagon socket capscrew M6 x 25mm long	2
12	Hexagon socket capscrew M6 x 16mm long	3
13	Hexagon socket capscrew M4 x 25mm long	4

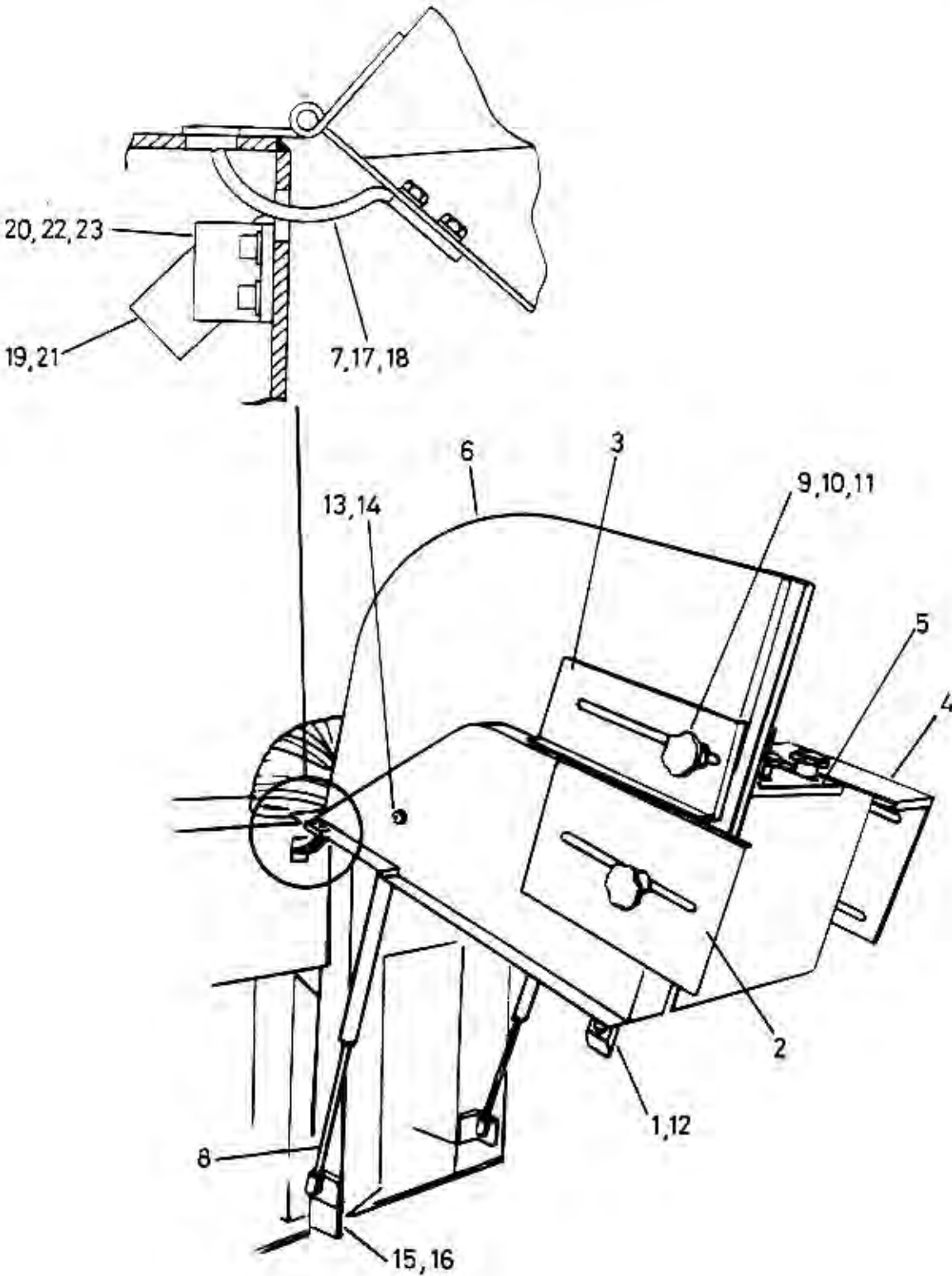
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SAW SPINDLE ASSEMBLY

SAW SPINDLE ASSEMBLY

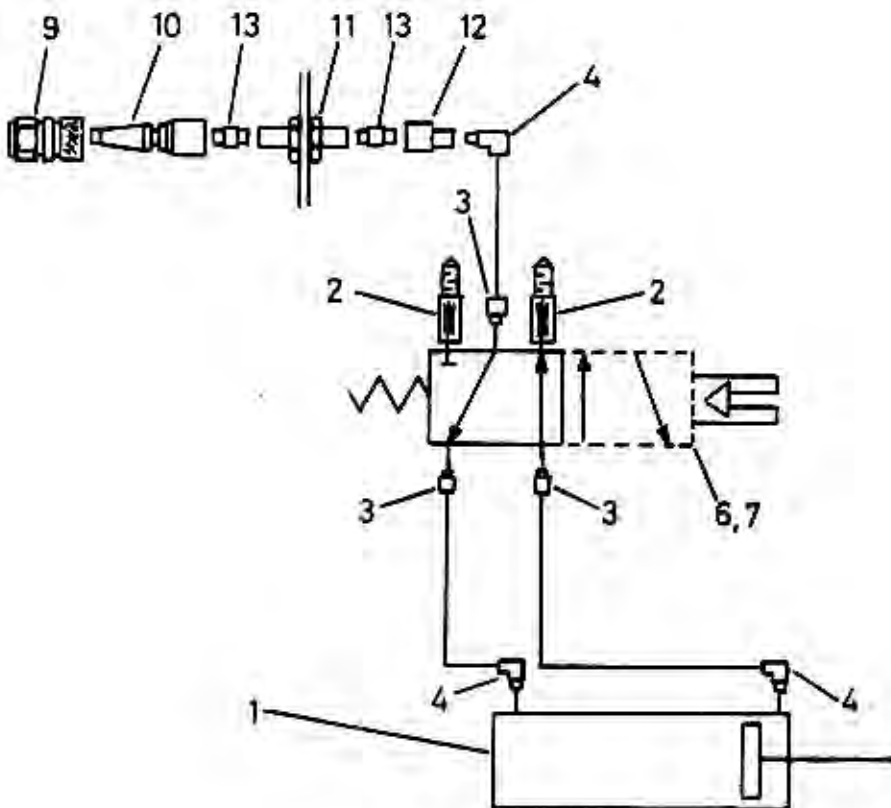
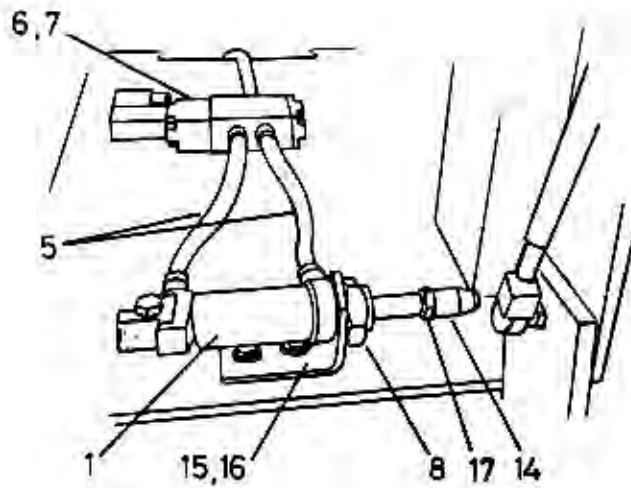
Ref	Description	No. Off
1	Driving peg	1
2	Saw spindle for right to left feed machine	1
	Saw spindle for left to right feed machine	1
3	Saw arm for right to left feed machine	1
	Saw arm for left to right feed machine	1
4	Front saw collar	1
5	Rear saw collar	1
6	End cap (blade end)	1
7	Bearing spacer	1
8	End cap (pulley end)	1
9	Internal circlip 80mm dia.	2
10	Wavey washer 'EMO' EPL 58	1
11	Tablock washer 40mm dia.	1
12	Notch nut M40 x 1.5p	1
13	Key 8mm x 7mm x 25mm long	2
14	Pulley 'Fenner' 122 x 2 SPA	1
15	Taper lock bush 1610 - 30mm	1
16	Hexagon socket capscrew M6 x 16mm long	8
17	Spring washer	8
18	Bearing 'SKF' or 'RHP' 6208 - 2RS	2
19	Hexagon full nut M24 x 3P LH thread for right to left feed machine	1
	Hexagon full nut M24 x 3P R.H. thread for left to right feed machine	1
20	Hexagon lock nut M24 x 3P L.H. thread for right to left feed machine	1
	Hexagon lock nut M24 x 3P R.H. thread for left to right feed machine	1



SAW GUARD AND FITTED PARTS

SAW GUARD AND ASSOCIATED PARTS

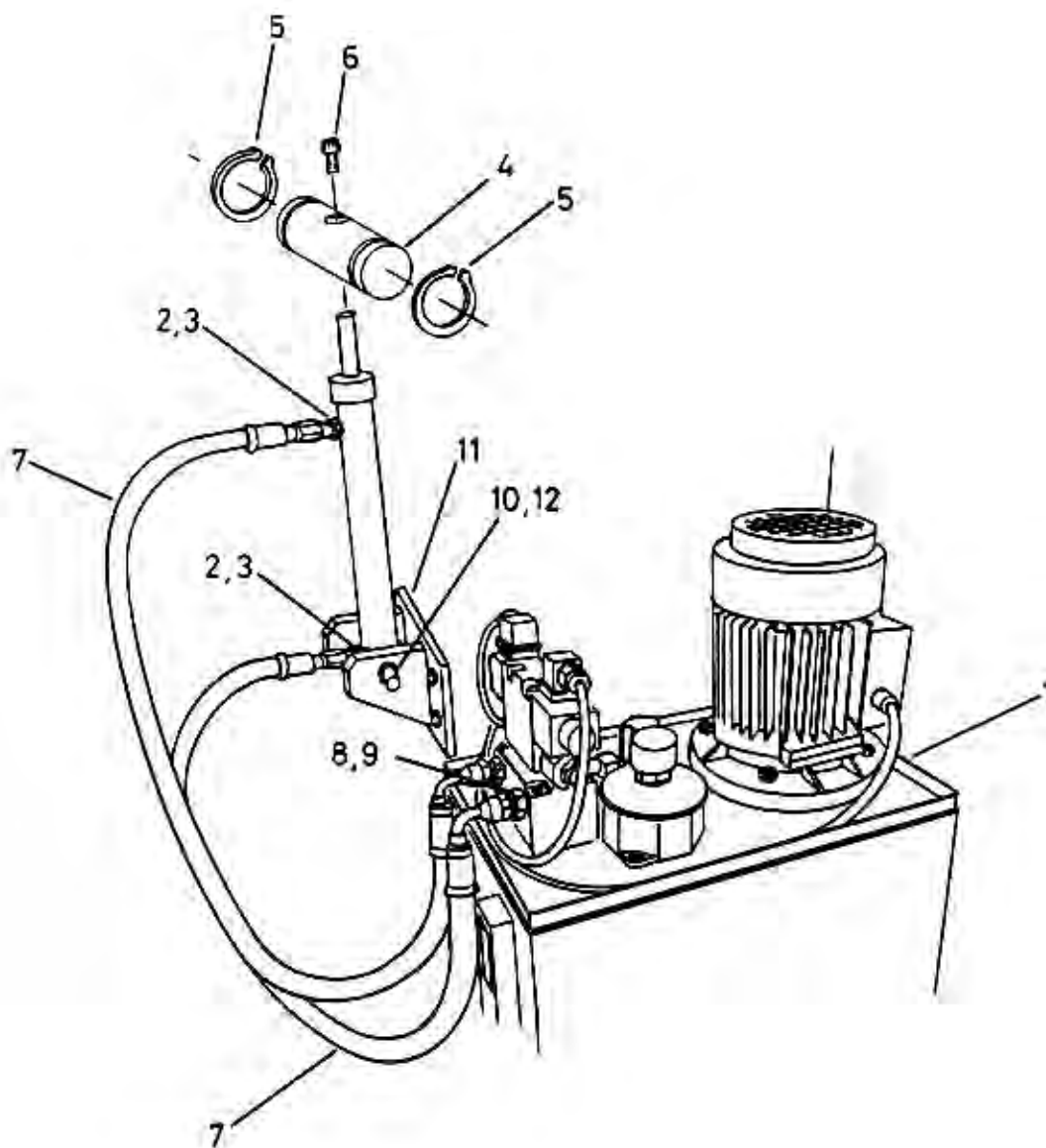
Ref	Description	No. Off
1	Latch striker	1
+	2 Adjustable guard	1
+	3 Adjustable guard	1
+	4 Adjustable guard	1
+	5 Adjustable guard	1
+	6 Main saw guard body	1
+	7 Cam (cut off limit switch)	1
8	Gas spring	2
9	Plastic handwheel dia. 45mm, M8 thread	6
10	Large diameter plain washer M8	6
11	Spring washer M8	6
12	Hexagon socket countersunk screw M6 x 16mm long	4
13	Plain hexagon nut M8	2
14	Locknut M8	2
+	15 Latch striker / cylinder pivot	1
16	Hexagon socket countersunk screw M6 x 20mm long	1
17	Hexagon head setscrew M6 x 8mm long	2
18	Spring washer M6	2
19	Steel roller plunger limit switch 'Telemecanique' A102.2	1
+	20 Limit switch mounting	1
21	Hexagon socket capscrew M4 x 25mm long	2
22	Hexagon socket capscrew M6 x 10mm long	2
23	Plain washer M6	2
+	When ordering specify feed direction ie. left to right or right to left	



PNEUMATIC SAFETY LATCH FOR SAW GUARD

PNEUMATIC SAFETY LATCH FOR SAW GUARD

Ref	Description	No. Off
1	'Schrader Bellows' double acting air cylinder B25 7102000	1
2	'Festo' exhaust flow control valve GRE - 1/8", No 10351	2
3	'Festo' straight connector CS - 1/8" - PK - 4KU No.5790	3
4	'Festo' 90 degree connector LCS - 1/8" - PK - 4KU No 6833	3
5	'Festo' 4mm bore plastic tubing PD-4 No 6204	As reqrd
6	'Schrader Bellows' electrically operated, spring return solenoid valve 1/4" B.S.P. ports Ref No. B - 53414SM	1
7	'Enots' Straight adaptor 1/8" B.S.P. female, 1/4" B.S.P male, Ref 34-0349.11	5
8	Hexagon locknut M10 x 1.25p	1
9	'Schrader Bellows' check unit 1/4" B.S.P. Ref 9793D-12	1
10	'Schrader Bellows' Straight adaptor 1/4" B.S.P. No 8278/11	1
11	'Schrader Bellows' male to male bulkhead connector 1/4" B.S.P. Ref S16-E (with nuts S33-1)	1
12	'Shrader Bellows' female to female reducer, 1/4" B.S.P. 1/8" B.S.P. Ref S30-E-C	1
13	'Shrader Bellows' extended drive 5/16" O/D tube Ref S11-E	2
14	Lock plunger	1
15	Support bracket for cylinder	1
16	Hexagon head setscrew M6 x 10mm long	2
17	Hexagon locknut M10	1



HYDRAULIC COMPONENTS

HYDRAULIC COMPONENTS

Ref	Description	No. Off
1	Hydraulic power pack	1
2	Bonded washer 1/4" B.S.P.	2
3	Male/male adaptor 1/4" B.S.P. to 3/8 B.S.P.	2
4	Trunnion pin	1
5	External circlip dia. 35mm	2
6	Hexagon socket capscrew M10 x 45mm long	1
7	Hydraulic hose 3/8 B.S.P. female 90 degrees swivel 3/8" B.S.P. female straight	2
8	Male/male adaptor 3/8" B.S.P. / 3/8" B.S.P.	2
9	Bonded washer 3/8" B.S.P.	2
10	Hydraulic cylinder pivot pin	1
11	Rear trunnion bracket	1
12	External circlip dia. 12mm	2

SUPPLEMENTARY EQUIPMENT

4 M long driven roller infeed table

2.5 M long driven roller outfeed table

PERIODIC MAINTENANCE SCHEDULE

Equipment	Maintenance attention	Period
Roller	Visual check clean if necessary	Weekly
Transmission chain	Oil can lubricate and check tension - Re tension if necessary	2 weeks
Gearbox	Check oil and replenish as necessary with BP GRXP 220 or similar specification oil	1 month
Chains linking roller to roller	Check condition - replace if necessary	2 weeks

SPARE PARTS

Item	Supplier
Variable speed geared motor unit R6OVU2DT9054 73-425 r.p.m., 1.1kW, B7 MRG position Z	Eurodrive
Drive sprocket 5/8" simplex ref 51-19	Fenner
Taper lock bush ref 1610 - dia. 30mm	Fenner
Transmission chain 5/8" simplex x 1500 long	Fenner
Side flex chain 5/8" simplex x 58 pitches including connecting link	Fenner