



BCL

LONG SPINDLE MOULDER

M/C No.

TEST No.

INSTRUCTION MANUAL

1.0	INDEX	Pages 1/1
2.0	SAFETY	Pages 2/1 to 2/2
2.1	Health & Safety Statement	Page 2/1
2.2	Safety Instructions	Page 2/2
3.0	SPECIFICATIONS	Page 3/1
3.1	Specification - Standard	Page 3/1
3.2	Specification - USA & Canada	Page 3/1
4.0	ASSEMBLY INSTRUCTIONS	Pages 4/1 to 4/7
4.1	Standard Items Despatched with Machine	Page 4/4
4.2	Slinging	Page 4/4
4.3	Foundation	Page 4/4
4.4	Cleaning	Page 4/4
4.5	Electrical	Page 4/4
4.5.1	Wiring Connection	Page 4/4
4.5.2	Fuse Lists	Page 4/5
4.5.3	Wiring Diagrams	Page 4/5
4.6	Dust Extraction Details	Page 4/6
4.6.1	Fence Extraction	Page 4/6
4.6.2	Base Extraction	Page 4/6
5.0	CONTROLS	Pages 5/1 to 5/7
5.1	Rise & Fall of Spindle	Page 5/1
5.2	Electrical Controls	Page 5/1
5.3	Spindle Lock	Page 5/1
5.4	Fence Adjustments	Page 5/1
6.0	USE OF MACHINE	Pages 6/1 to 6/7
6.1	General Hints	Page 6/1
6.2	Spindle Speed Changing	Page 6/1
6.3	Shawguard - Extra	Page 6/1
6.4	Safety Guard and Ring Fence - Extra	Page 6/5
6.5	Reversing Switch - Extra	Page 6/5
6.6	Curved Work	Page 6/5
6.7	False Fence Plates for Straight Work	Page 6/5
7.0	MAINTENANCE	Pages 7/1 to 7/3
7.1	Lubrication	Page 7/1
7.2	Belt Changing	Page 7/1
8.0	SPARES	Pages 8/1
8.1	Instructions when ordering Spare/Replacement Parts	Page 8/1
9.0	OPTIONAL EXTRAS	Pages 9/1 to
9.1	Electronic Positioning	Page 9/1

2.1

HEALTH & SAFETY**SAFETY OF WOODWORKING MACHINES**

Woodworking machines can be dangerous if improperly used. The wide range of work of which they are capable, requires adequate safeguarding arrangements against possible hazards.

Many injuries to machinists are caused by carelessness or failure to use the guards provided or to adjust them correctly.

Wadkin plc supply machinery designed for maximum safety which they believe, as a result of thorough testing, minimizes the risks inevitable in their use. It is the users responsibility to see that the following rules are complied with to ensure safety at work:

- 1) The operation of the machine should conform to the requirements of the UK Woodworking Machines Regulations 1974. All guards should be used and adjusted correctly.
- 2) Safe methods of working only should be adopted as given in BS.6854 Part 1, "Safeguarding Woodworking Machines" (UK only) and subsequent parts for specific machines (obtainable from Her Majesty's Stationery Office) and as advised by Wadkin plc.
- 3) Only personnel trained in the safe use of a machine should operate it.
- 4) Before making adjustments or clearing chips, etc., electrically isolate machine and ensure all movements have ceased.
- 5) All tools and cutters must be securely fixed and the correct speed selected.

Safety is our watchword, but the user must comply with the above rules in his own interest. We would be pleased to advise on the safe use of our products.

Wadkin Leicester
Green Lane Works
Leicester. LE5 4PF
England
Telephone: 0116 2769111
Fax: 0116 2598138

2.2 SAFETY INSTRUCTIONS

Carefully read instruction manual with particular reference to the following instructions:-

- a) Slinging, ie, safe lifting limits for slings, etc.
- b) Installation and foundation, ie, safe working area of machine, bolt positions, etc.
- c) Wiring details, ie, connection of machine to mains supply, fuse details, etc.
- d) Machine controls and operating instructions.

Ensure tooling is of the correct type for use with the machine and cutters are securely fixed in position.

Select correct spindle speed and feed rate relevant to the tooling being used.

Set all guards correctly and ensure they are securely fixed in accordance with the current regulations.

Use suitable jigs, fixtures and feeding devices etc., (push stick, etc.,) where appropriate.

Refer to BS.6854, Part 1, "Safeguarding Woodworking Machines" UK market and subsequent parts for specific machines for safe working practices.

During Machining

Wear suitable protective equipment, where necessary, eg, goggles, ear defenders and dust mask.

Ensure all moving parts of the machine are stationary before setting, cleaning or making any adjustments.

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

Ensure machine is electrically isolated before any maintenance/cleaning work commences.

NOISE LEVELS

This machine, under certain conditions, will emit noise levels in excess of 85dB(a).

Noise levels will be affected by the environment in which the machine operates the timber being machined, tooling, machine setting and dust extraction.

Further information available from Wadkin on request.

As a manufacturer it is Wadkin's policy to reduce the noise level as far as it is practicable.

3.0 SPECIFICATION BCL

3.1 SPECIFICATION - STANDARD

Diameter of Solid Spindle	40mm	
Table Size	865 x 1150mm	34 x 45in
Table Height	900mm	35.1/2in
Spindle Rise and Fall	210mm	8.1/4in
Power of Motor		
	Standard	5.5kw 7.5hp
	Optional	7.5kw 10hp
Spindle speeds	3000, 4500, 6000, 8000, 10,000rpm	
Approximate Floor Space	865 x 1150mm	34 x 45in
Approximate Nett and Gross Weight	350kg	770 lb
Shipping Dimensions		

3.2 SPECIFICATION - USA & CANADA

Diameter of Solid Spindle	40mm
Table Size	34 x 45in
Table Height	35.1/2in
Spindle Rise and Fall	8.1/4in
Power of Motor	
	Standard 9hp
	Optional 12hp
Spindle speeds	3600, 5400, 7200, 9600, 12,000rpm
Approximate Floor Space	34 x 45in
Approximate Nett and Gross Weight	770 lb
Shipping Dimensions	

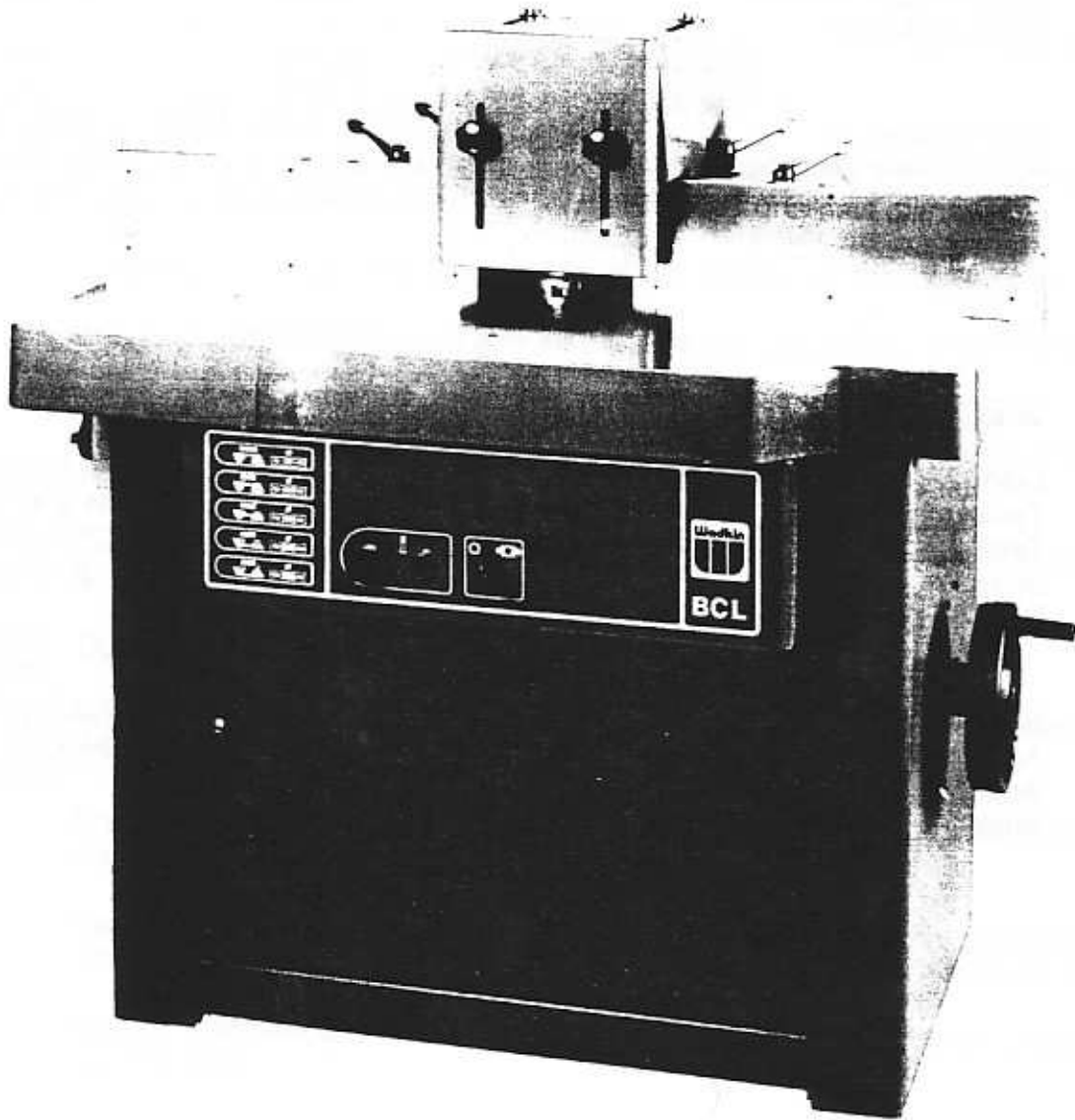
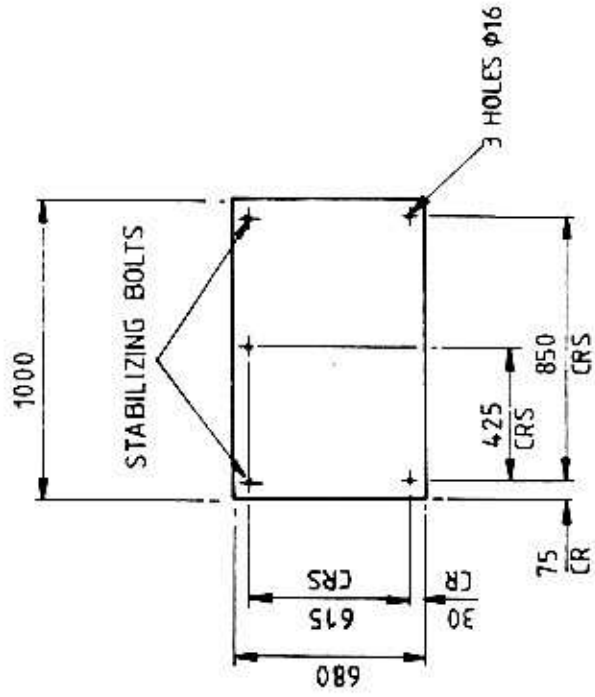
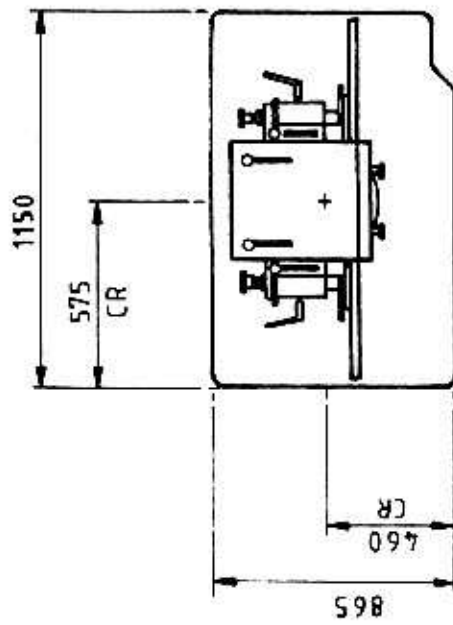
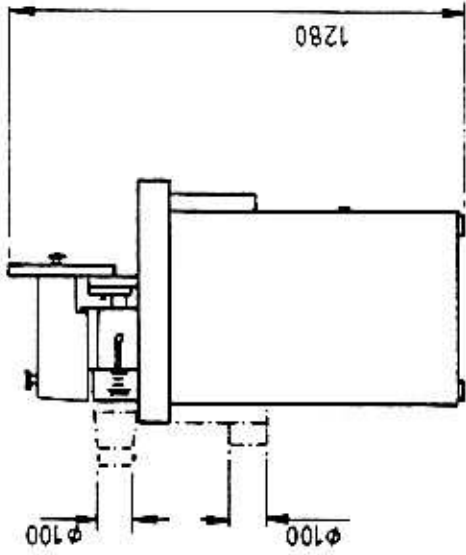
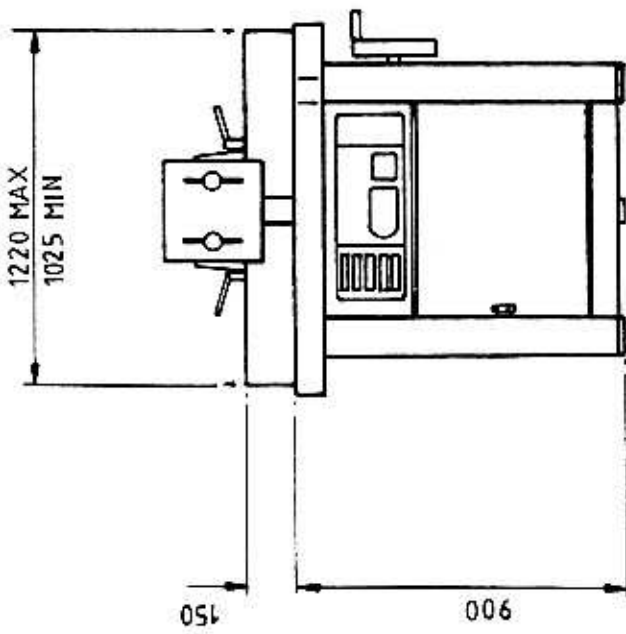


FIG. 1

4.1

STANDARD ITEMS DESPATCHED WITH MACHINEFIG.2

- 1 - 46mm A/F Spanner
- 1 - 17/19mm A/F Spanner



BCL FOUNDATION DRAWING

FIG. 3

4.0 ASSEMBLY INSTRUCTIONS

4.1 Standard Items Despatched with Machine

A set of operational spanners are despatched with the machine, see FIG.2 for details.

4.2 Slinging

Always use a sling within safe working load of machine weight.

Approximate Nett and Gross Weight	350kg	770 lb
-----------------------------------	-------	--------

To sling machine, position slings under table overhang at left and right hand side of machine. Slowly lift machine, ensuring machine is not tilting at an angle and that sling is not slipping.

IMPORTANT: DO NOT WALK OR STAND UNDER MACHINE DURING SLINGING OPERATION.

4.3 Foundation

The machine should be so placed that the traffic of men and materials to and from it fits smoothly into the general scheme of traffic. It should also not be necessary for the operator to stand in or near an aisle so as to cause a hazard. The minimum clearance on each working side of the machine should be at least 1 metre greater than the largest material worked on the machine.

Ensure floor is level, then mark to suit 3 - M12 rawlbolts, refer to foundation plan FIG.3. Drill floor to suit rawlbolts. These bolts are not supplied with the machine, but can be supplied at an additional charge. To obtain access to foundation bolts and stabilizing bolts, open front access door. Position machine over rawlbolts, adjust 2 stabilizing bolts until they touch the floor, lock in position with locknuts. Fully tighten rawlbolts. Close front access door.

4.4 Cleaning

Remove protective coating from bright parts by applying a cloth soaked in paraffin or other solvents.

4.5 Electrical

4.5.1 Wiring Connections

The motor and control gear have been wired in before despatch, all that is required is to connect the power supply to the starter or isolating switch when fitted.

Points to note when connecting power supply:-

- a) Check the voltage, phase and frequency correspond to those on the motor plate.

- b) It is important that the correct cable is used to give the correct voltage to the starters, as running on low voltage will damage the motors.
- c) Check the main line fuses are of the correct capacity. See fuse list. (Refer to 4.5.2)
- d) Connect the line leads to the appropriate terminals. See wiring diagrams. (Refer to 4.5.3).
- e) Check all connections are sound.
- f) Check rotation of all motors for the correct direction. If these are incorrect, reverse any two of the incoming mains leads connections.

4.5.2 Fuse List

Direct on Line

<u>Voltage</u>	<u>Phase</u>	<u>HZ</u>	<u>KW</u>	<u>SWG Tinned Copper Wire</u>	<u>Starting Amps</u>
220	3	50	5.5	14	90
380	3	50	5.5	15	70
415	3	50	5.5	18	43
220	3	50	7.5	12	120
380	3	50	7.5	15	70
415	3	50	7.5	16	63

Star Delta

<u>Voltage</u>	<u>Phase</u>	<u>HZ</u>	<u>KW</u>	<u>SWG Tinned Copper Wire</u>	<u>Starting Amps</u>
220	3	50	5.5	18	45
380	3	50	5.5	21	29
415	3	50	5.5	23	18
220	3	50	7.5	18	45
380	3	50	7.5	20	35
415	3	50	7.5	21	30

USA & Canada

<u>Voltage</u>	<u>Phase</u>	<u>HZ</u>	<u>HP</u>	<u>Cartridge Fuse (Circuit Protection)</u>
220	3	60	12	120
440	3	60	12	60
575	3	60	12	40

4.5.3 Wiring Diagrams

See wiring diagrams in rear of manual.

4.6 Dust Extraction Details

4.6.1 Fence Extraction

Fence extraction outlet which is an optional extra is fitted to the rear of the fence. The outlet size is 100mm dia and should be connected to a flexible extraction hose from the main plant. The volume of air to be extracted is 206 LPS (436 CFM) with a velocity of 26 MPS (5,000 ft per min).

4.6.2 Base Extraction

The base extraction outlet which is an optional extra is fitted to the rear of the base. The outlet size is 100mm dia and should be connected to a flexible extraction hose from the main plant. The volume of air to be extracted is 206 LPS (436 CFM) with a velocity of 26 MPS (5,000 ft per min).

5.0 CONTROLS

5.1 Rise & Fall of Spindle

To rise and fall spindle, proceed as follows:-

- a) Loosen locking handle "A" FIG.4.
- b) Raise or lower the spindle by handwheel "B", in conjunction with digital readout "C", one full turn of handwheel = 2mm vertical movement.
- c) Relock locking handle "A".

Whilst the rise and fall movement of the spindle provides an immediate adjustment of cutter height, further adjustment outside this range can be affected by re-positioning collars on work spindle. (Refer to use of machine 6.1.i and 6.3).

5.2 Electrical Controls

The control panel is shown in FIG.5. When isolator "D" FIG.6 is fitted, ensure it is in the 'ON' position before operating.

The spindle is controlled by start button "E" and emergency stop button "F", FIG.5.

5.3 Spindle Lock

- a) Stop spindle by emergency stop button (Refer to 5.2).
- b) Open front access door.

NOTE: When front access door is open, electrical limit switch is activated and spindle can not be started.

- c) Disengage brake by switch "G" FIG.5.

NOTE: Spindle can not be started when brake switch is in released position.

- d) Move spindle lock lever "H" FIG.7 towards spindle and rotate spindle by hand until spindle lock engages FIG.8.

NOTE: Front access door will not close while spindle lock is engaged.

SAFETY WARNING: DO NOT ENGAGE SPINDLE LOCK UNTIL SPINDLE HAS STOPPED.

5.4 Fence Adjustments

Fence adjustments are as follows:-

- a) For complete movement of fence, loosen locking handles "J" FIG.9 and position fence as required, relock locking handles "J".

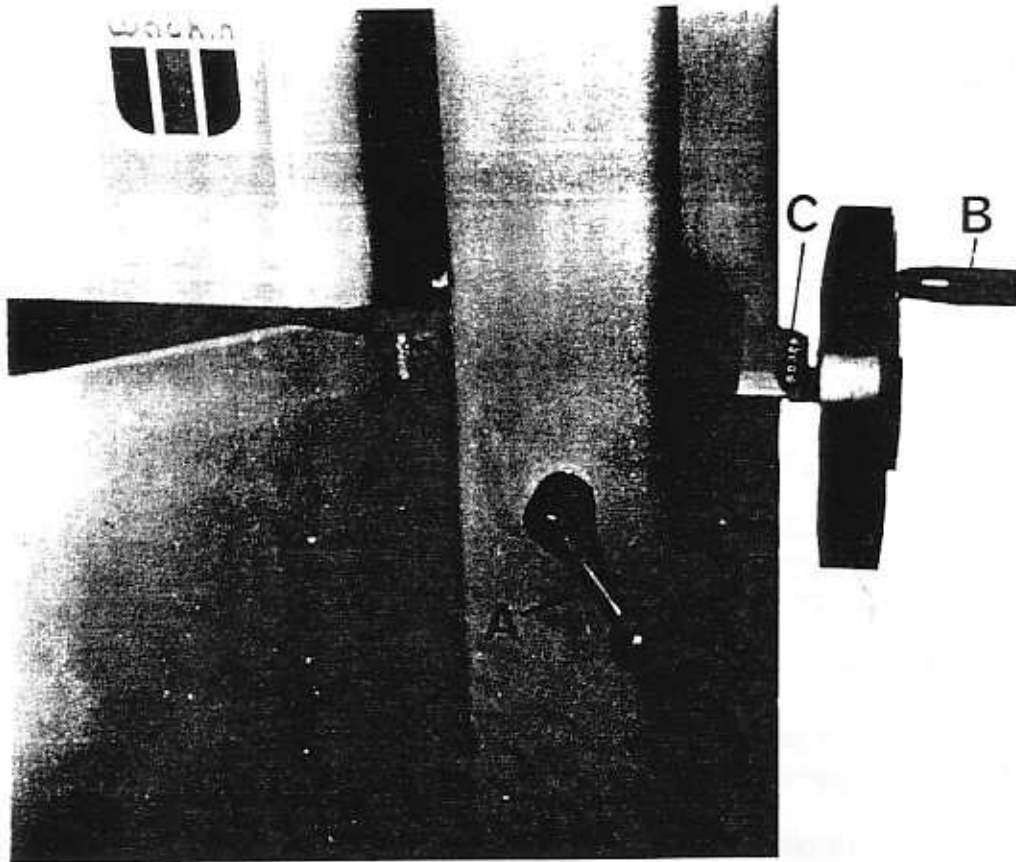


FIG. 4

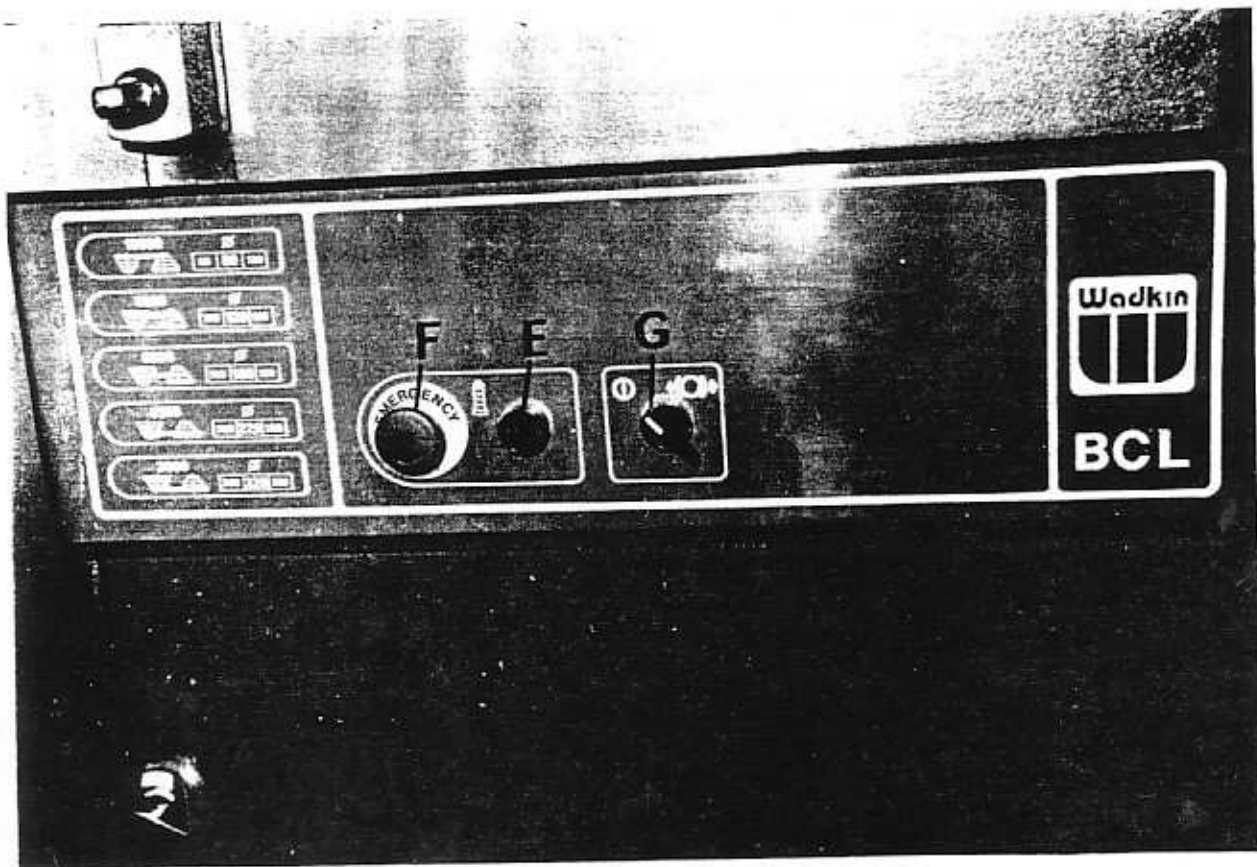


FIG. 5

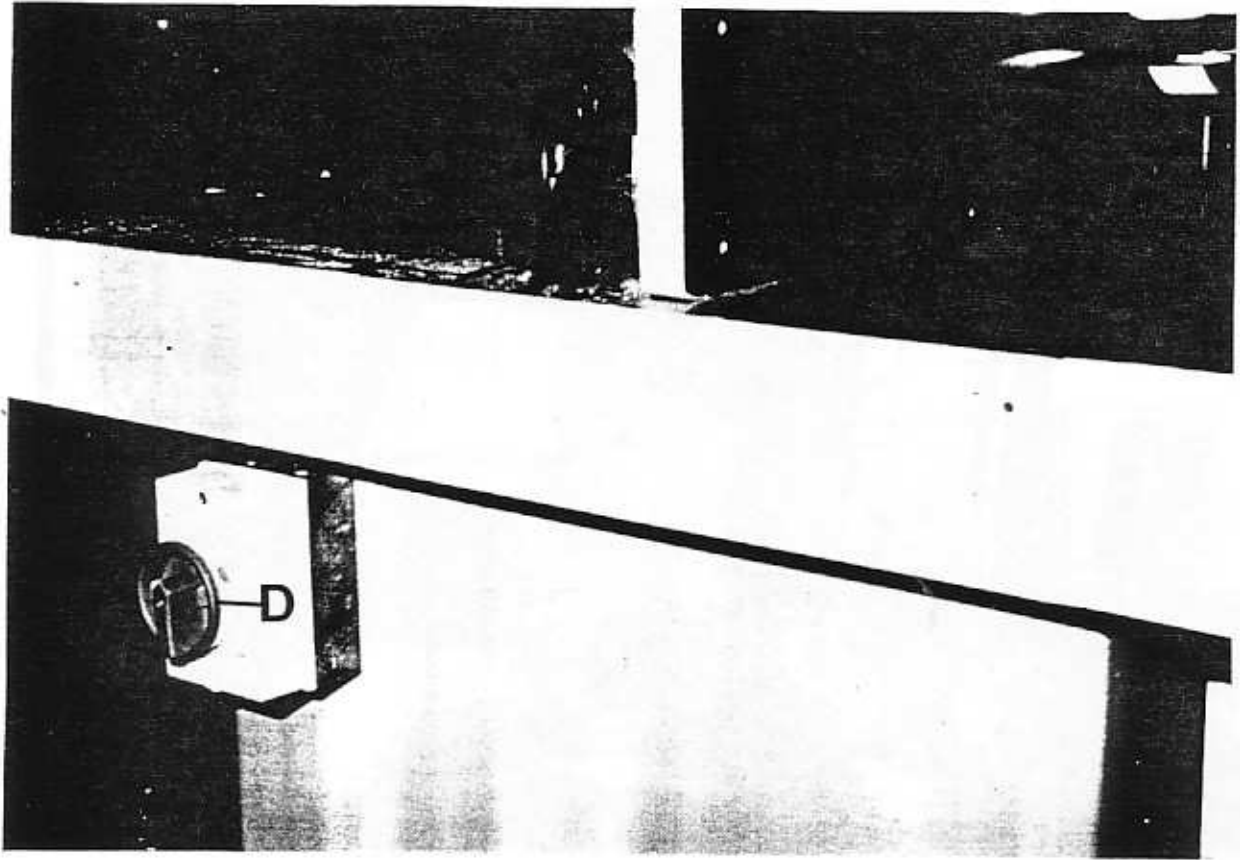


FIG. 6

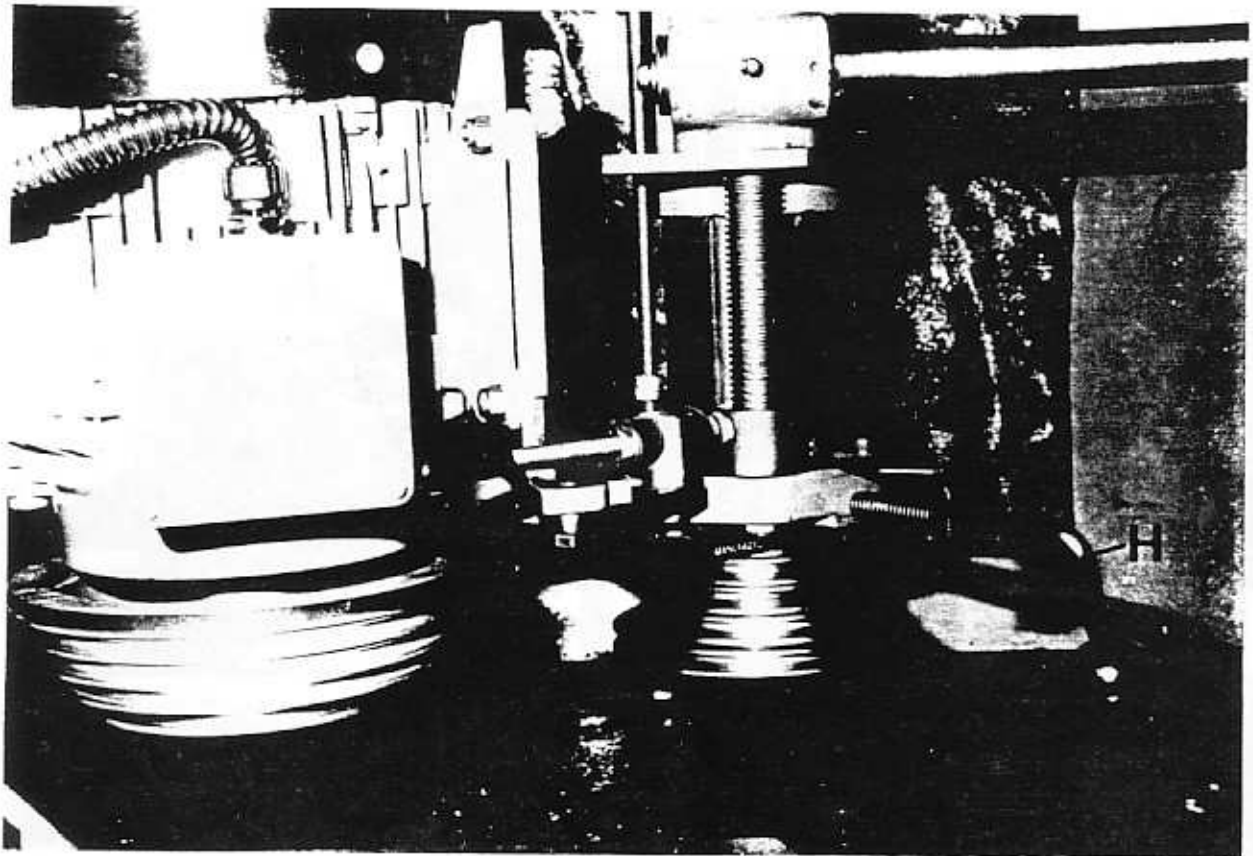


FIG. 7

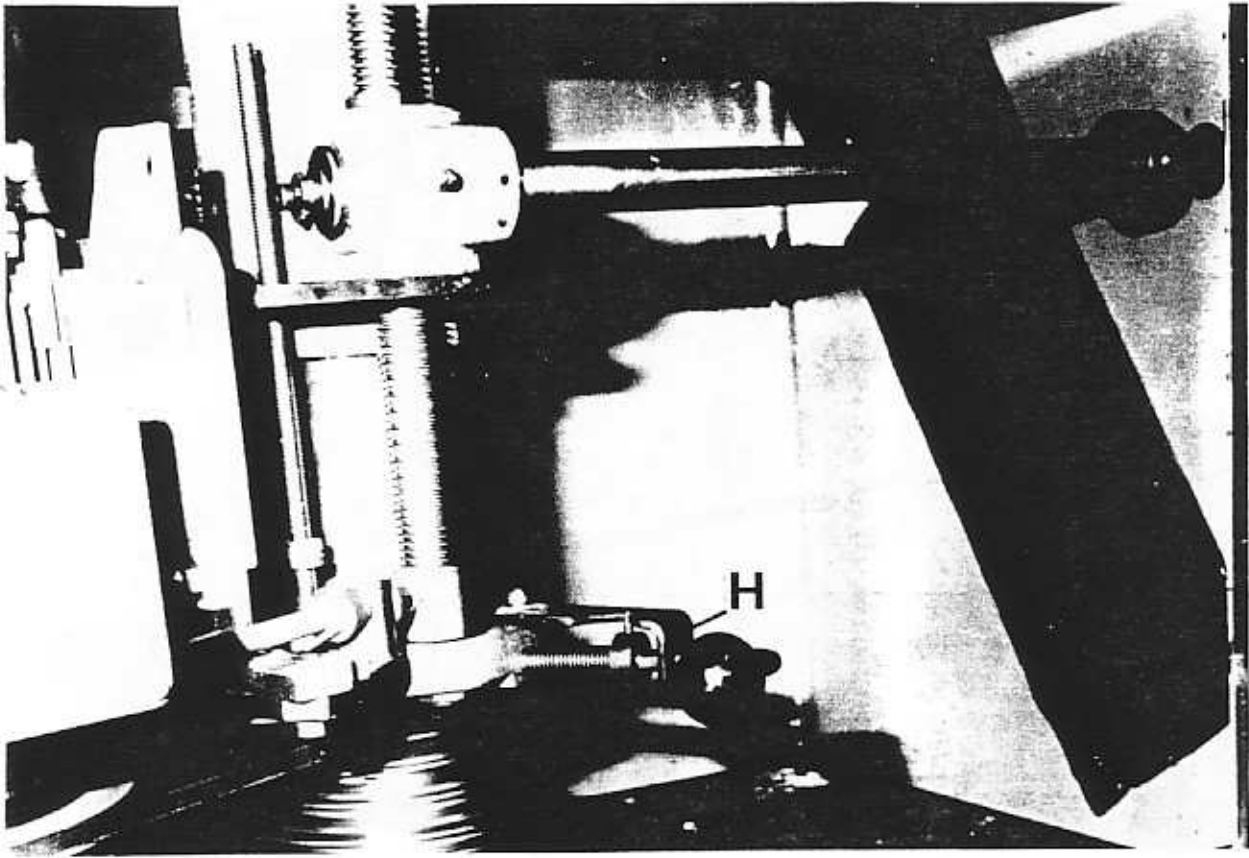


FIG. 8

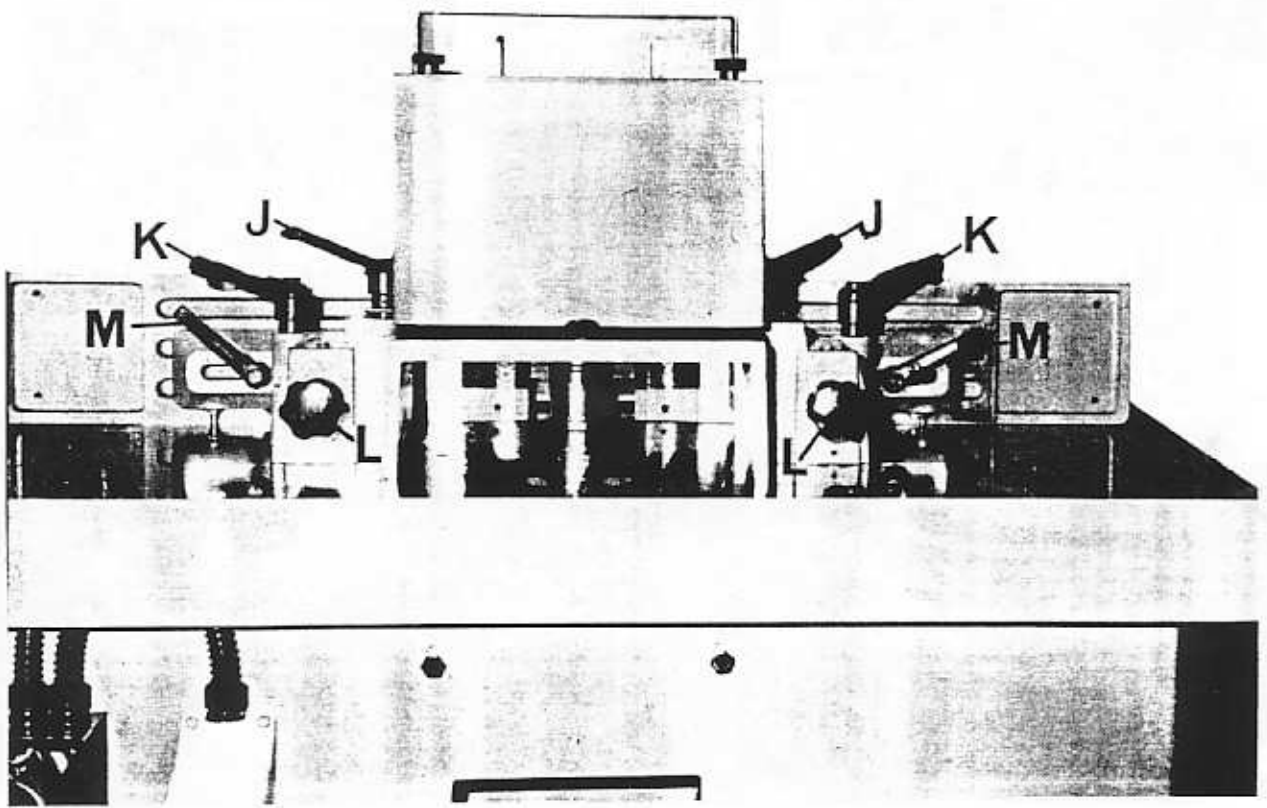


FIG. 9

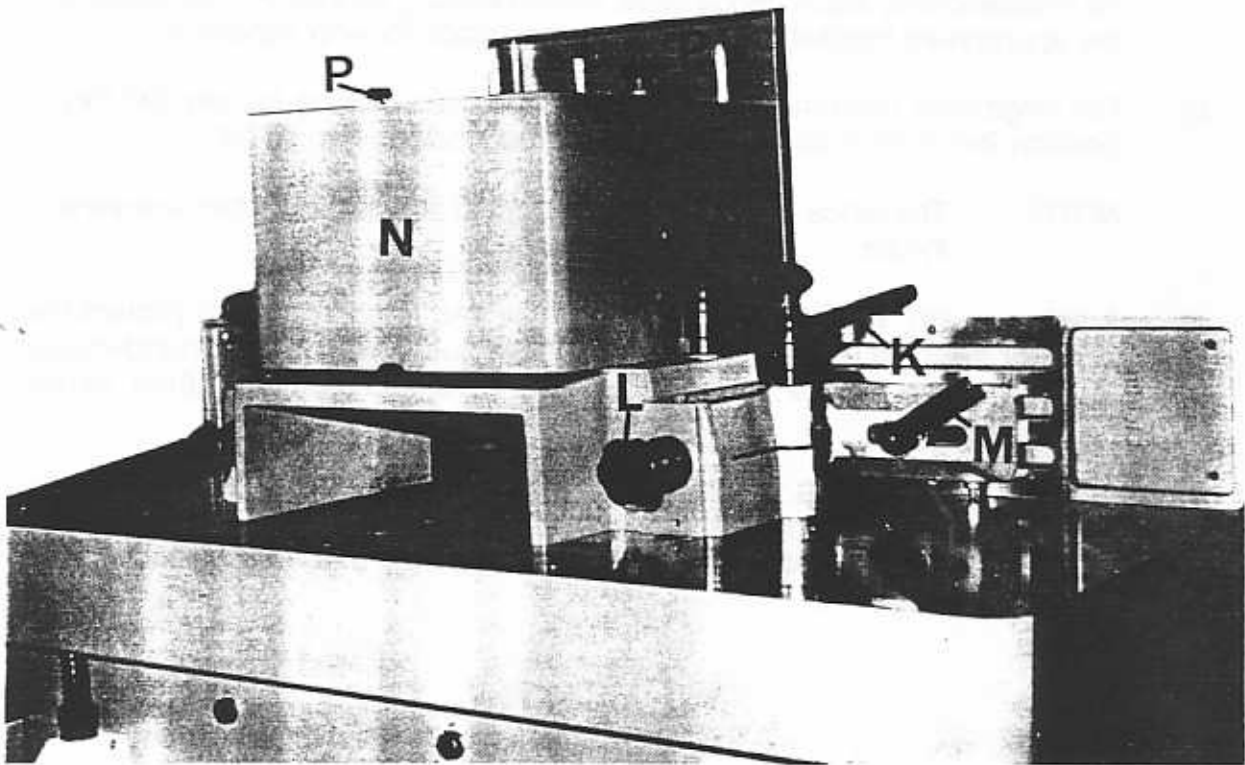


FIG. 10

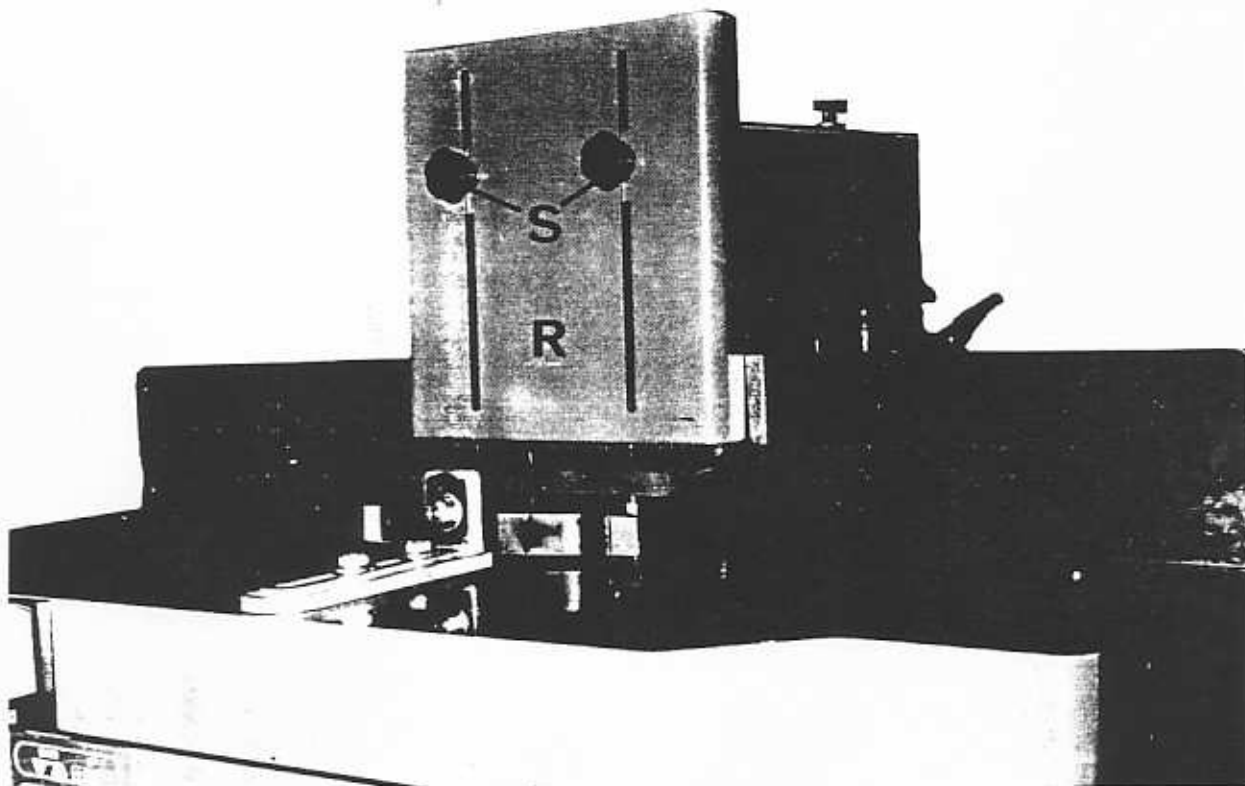


FIG. 11

- b) To independently adjust fence plate, loosen locking handle "K" FIG.9 and turn the appropriate handwheel "L". When set, relock locking handle "K".
- c) For lengthwise movement of fence plates, loosen locking handle "M" FIG.9, position fence plate as required, then tighten locking handle "M".

NOTE: The fence plates must be locked in all positions when machine is in use.

- d) A safety guard "N" FIG.10 is fitted to fence and is adjustable to protect the operator from the rotating cutters. To adjust guard loosen the 2 handwheels "P", position guard to cover cutters as much as possible, then relock handwheels "P".
- e) A safety visor "R" FIG.11 is fitted to safety guard "N" and is adjustable to protect the operator from the rotating cutters. To adjust guard, loosen the 2 handwheels "S", position guard to cover cutters as much as possible, then relock handwheels "S".

6.0 USE OF MACHINE

6.1 General Hints

- a) Always select the correct speed for cutter equipment being used. Wadkin Durham cutterblocks are stamped with the maximum permissible speed, but this may need to be reduced, depending on shape and general condition of cutter being used.
- b) Use sharp cutters which should be well balanced.
- c) Ensure the cutters are tight in the blocks before starting machine. Use spanners provided and never fit a piece of piping to obtain greater leverage. This will strain the nuts and bolts and ultimately make them unsafe.
- d) Keep nuts and bolts clean and keep oil on the threads.
- e) Never run the cutter equipment at higher than the recommended speed.
- f) Always use the guards available to ensure maximum protection.
- g) Make good robust jigs and ensure that the parts are located securely on the jigs.
- h) Always isolate machine electrically when performing maintenance, etc.
- i) It is bad practice to use cutters at the top of the spindle, always fit as low down as possible.
- j) The 4 removable table rings give 5 table openings of 355, 265, 190, 150 and 80mm dia (14", 10.7/16", 7.1/2", 6" and 3.1/8").

6.2 Spindle Speed Change

The spindle is fitted with a 5 speed drive facility. To change spindle speed, proceed as follows:-

- a) Disengage brake by switch (refer to 5.3.c).
- b) Open front access door.
- c) Release belt tension on drive arrangement by pulling lever "A" FIG.12
- e) Position drive belt "B" on pulleys for required spindle speed. See pulley diagrams FIG.13 (or FIG.14 for USA and Canada) for spindle speeds.

6.3 Shawguards - Extra

Vertical and horizontal shawguards can be fitted as shown in FIG.15. The shawguards provide top and side pressure to timber ensuring safety in operation for use with standard fences.

NOTE: Shawguards are required by law if power feed unit is not fitted.

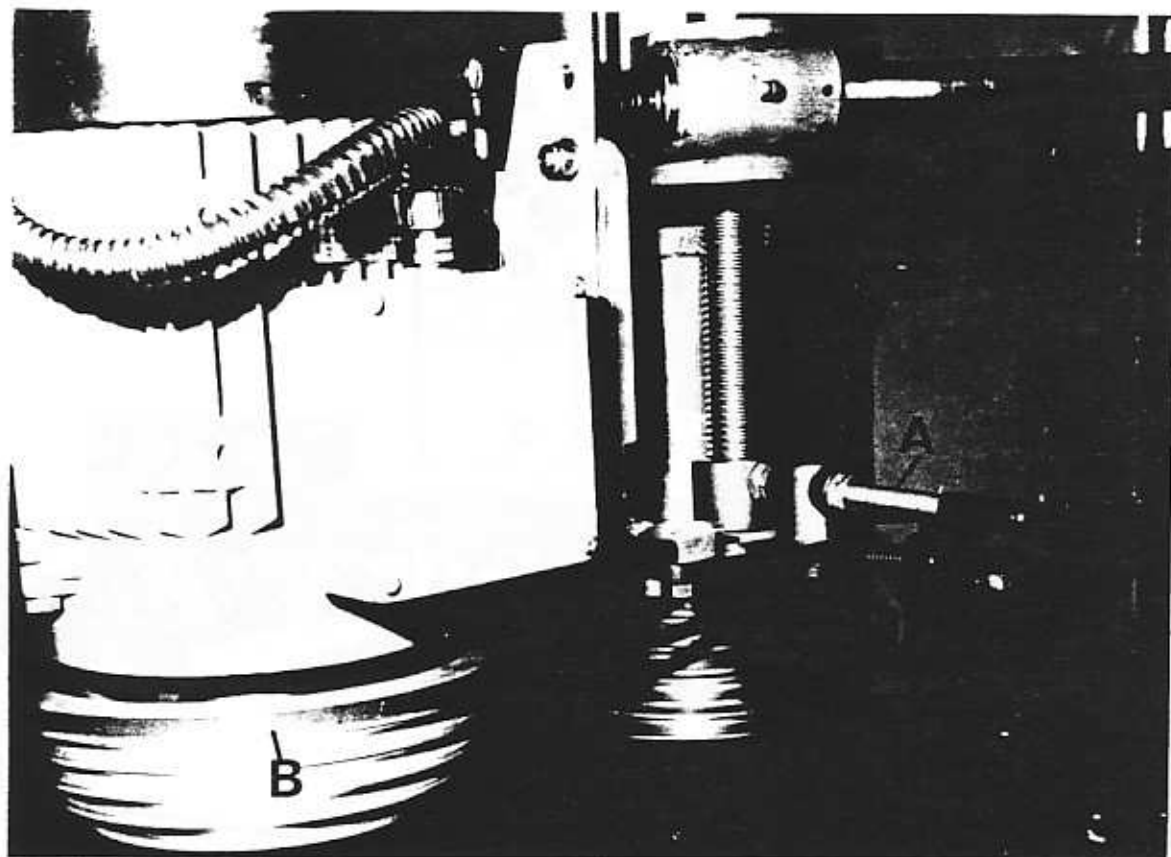


FIG.12

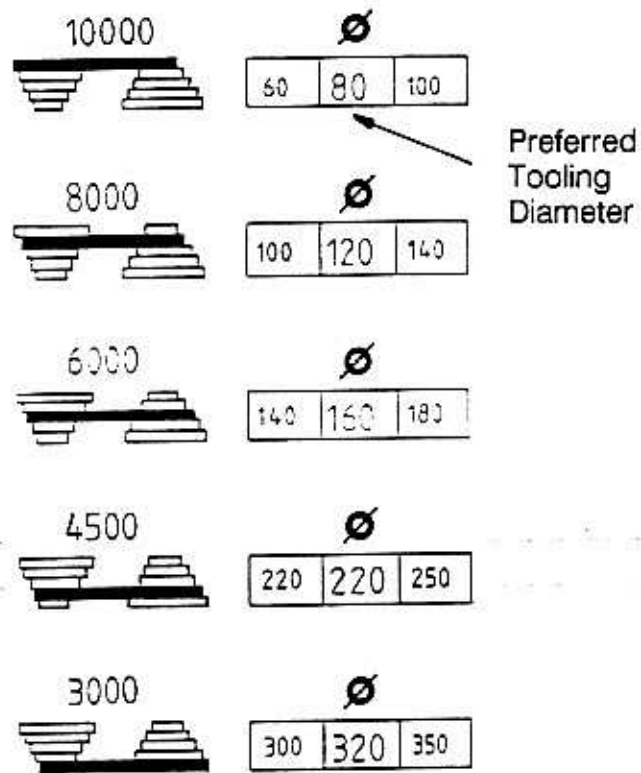


FIG. 13

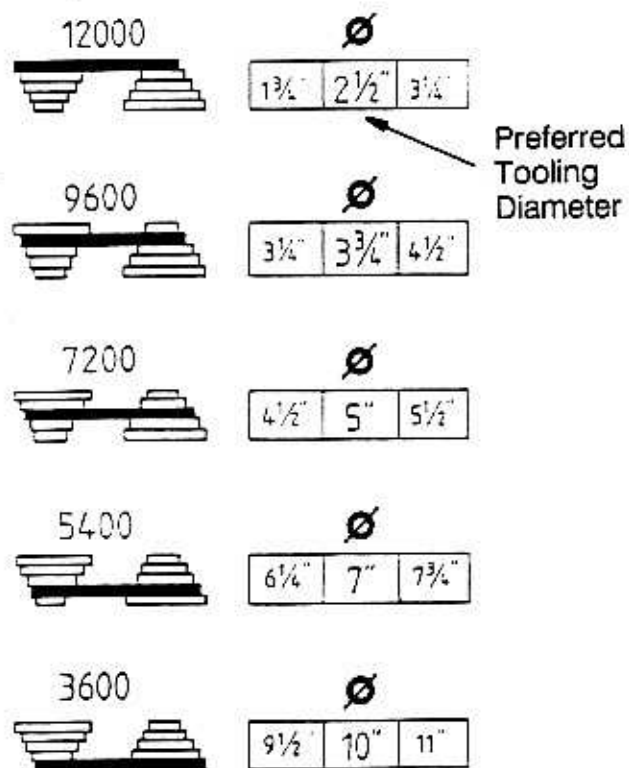


FIG. 14

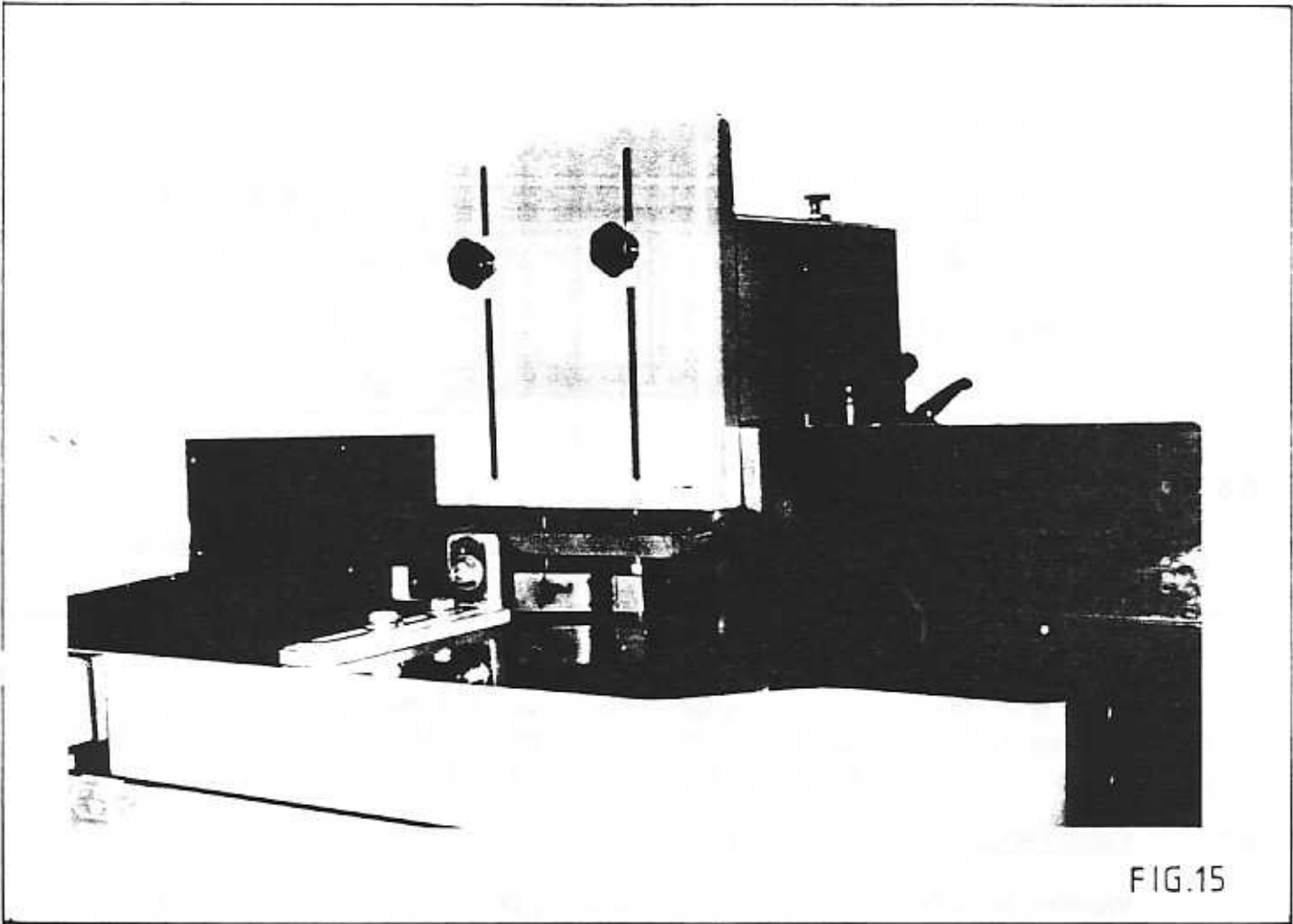


FIG.15

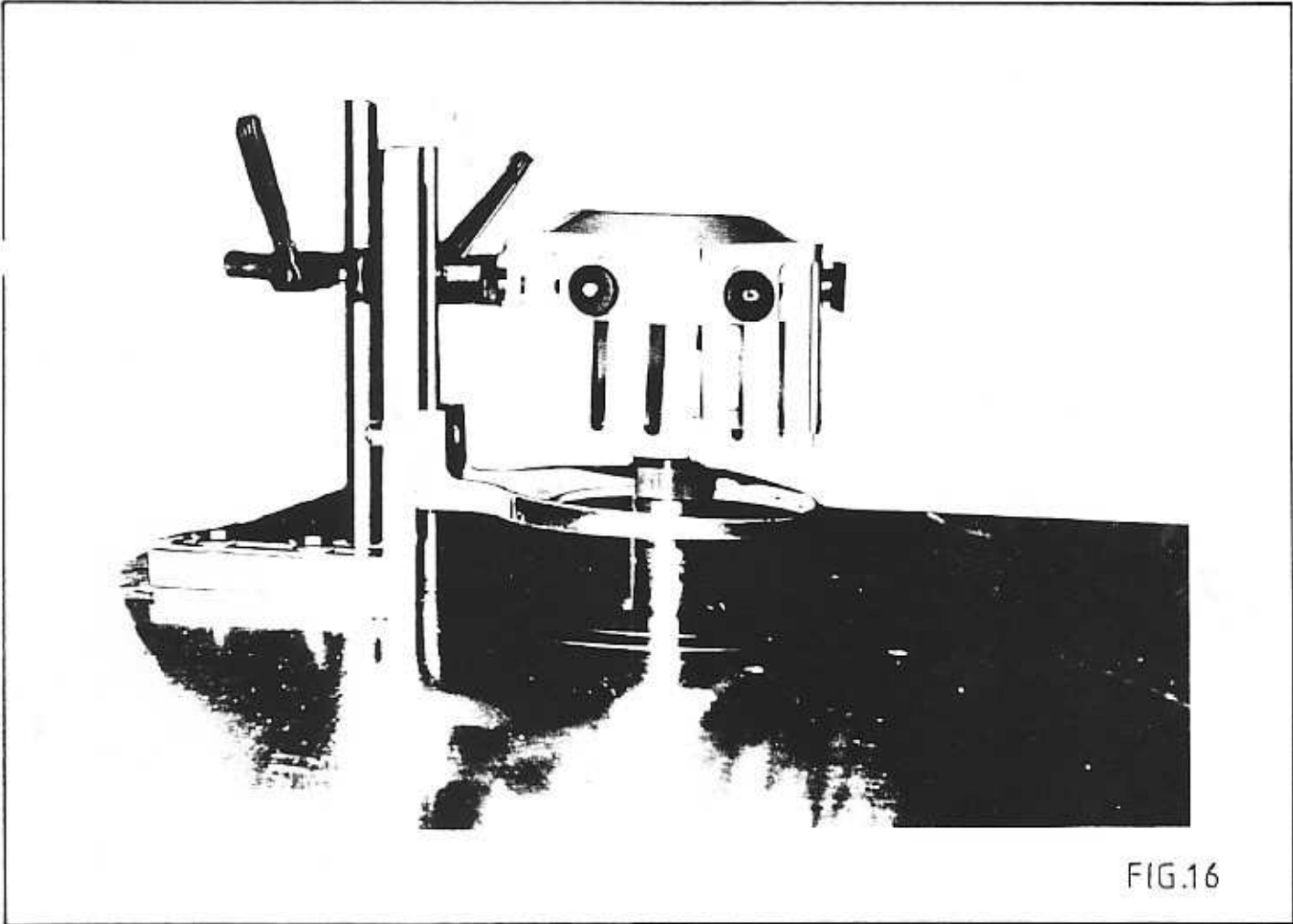


FIG.16

6.4 Safety Guard and Ring Fence - Extra

A safety guard and ring fence can be fitted as shown in FIG.16. This guard has adjustable flaps which completely covers the cutter equipment and is used in conjunction with ring fence, which is used on all types of curved work.

6.5 Reversing Switch - Extra

When using spindle in reverse position, always ensure both locknuts are fitted to work spindle.

6.6 Curved Work

Equipment required - ring fence and safety guard with flaps. The cutter is set relevant to work being done, example shown in FIG.17. The safety guard is then set to cover up block and top piece leaving only sufficient room for work to pass underneath.

Work is to be mounted on a shaped fixture which is held up to the ring fence. Contact must always be at the same point on the ring fence to ensure even depth of cut. This is essential due to the shape of the ring.

6.7 False Fence Plates for Straight Work

Wooden false fence plates can be fitted using pre-drilled holes in cast iron fence plates.

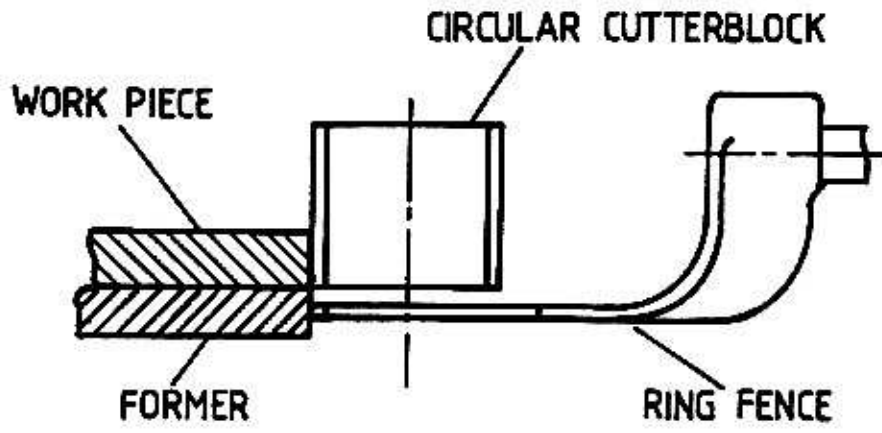


FIG.17

7.0 **MAINTENANCE**

7.1 **Lubrication**

All working parts are designed to require no lubrication.

It is advisable to keep all bright parts covered with a thin film of oil to prevent rusting.

For approved lubricants, see page 7/2

7.2 **Belt Changing**

Refer to 6.2.

APPROVED LUBRICANTS

Application	Castrol	B.P.	Shell	Esso	Texaco	Century
Worm Boxes	Alpha SP220	Energol XP220	Omala 220	Sparlan EP220	Meropa 220	F76
General Lubrication	Magna 68	Maccurat 68	Tonna T68	Febis K68	Way Lube 68	WLC
Pneumatic Lubricators	Hyspin AWS32	Energol HL32	Tellus 37	Nuto H32	Rando Oil HD32	AF32
Grease	Spheerol AP3	Energrease L53	Alvania R3	Beacon 3	Multifak EP3	Lupas A3
Brake Cables	Brake Cable Grease	Energrease L21M	Alvania R3	Multi-Purpose Grease		Molycent MP

8.0 **SPARES**

8.1 **Instructions When Ordering Spare/Replacement Parts**

The undermentioned information should be given with all orders requesting spare/replacement parts.

- a) Machine type.
- b) Machine serial number.
- c) If no manual available, give as full a description as possible of the required part, including location within the machine.
- d) Order number and full company name and address.
- e) Company account number, with **Wadkin**, if known.
- f) All telephone orders must be followed by an official order, clearly marked "Confirmation Order".

NOTE: The company operate a 'Minimum Order Charge' on all spare/replacement part orders.

9.0 OPTIONAL EXTRAS

9.1 THE 87P IN OPERATION

PROGRAMMING

Registers R97 and R40 must be set appropriately.

Programming is effected in following manner:-

Press NR - Address 01 is indicated. LED in demand position field.
 Press C - Cancels existing value in demand position field.
 Enter Demand position using 0-9 keys.
 Press > - LED moves to quantity field.
 Press C - Cancel existing value.
 Enter Demand quantity using 0-9 keys.
 Press > - LED moves to positioning mode field.
 Press C - Cancel existing value.
 Enter required mode eg "0" for Absolute mode.
 Press > - LED moves to auxiliary function field.
 Press C - Cancel existing value.
 Enter required output 0-4.
 Press NR - Address 02 is indicated.

You can now proceed repeating above for each sentence of the programme.

When the last line has been completed

Press E - Stores programme in memory.

EDITING

If at any time during programming you wish to abort, press "T".

Should a value in a programme need to be changed, without disturbing the rest of the programme, proceed as follows.

Press NR as many times as necessary to reach the sentence to be amended.

Press > till required field is indicated.

Press C to cancel value.

Enter new value required.

Press > New value is now stored.

SINGLE POSITION OPERATION

Press PROG

Press Single

Enter required position by keypad 0-9

Press Start button

OPERATING IN PROGRAMME MODE

The controller should first be reset, either by pressing "PROG" or giving external "Reset" input.

Pressing "Start" (or giving external start signal) will energise the system and machine will move to the first programmed position.

On arrival in position, the output signal "position reached" is given as a pulse.

At the point when quantity readout goes from 1 to 0, a pulse output "Quantity reached" is given.

During operation of an address the selected auxiliary function output is energised.

On giving the next "start" signal, the machine will move to the second address position; and so forth.

Once the last selected address has been operated, the programme returns to address 01 on the next start.

To stop programme at end, it is necessary to use one of the auxiliary function outputs.

OPERATING IN 99 ADDRESS SELECTION MODE

(Mode Selected by R97)

Press PROG

Press NR

NR display flashes

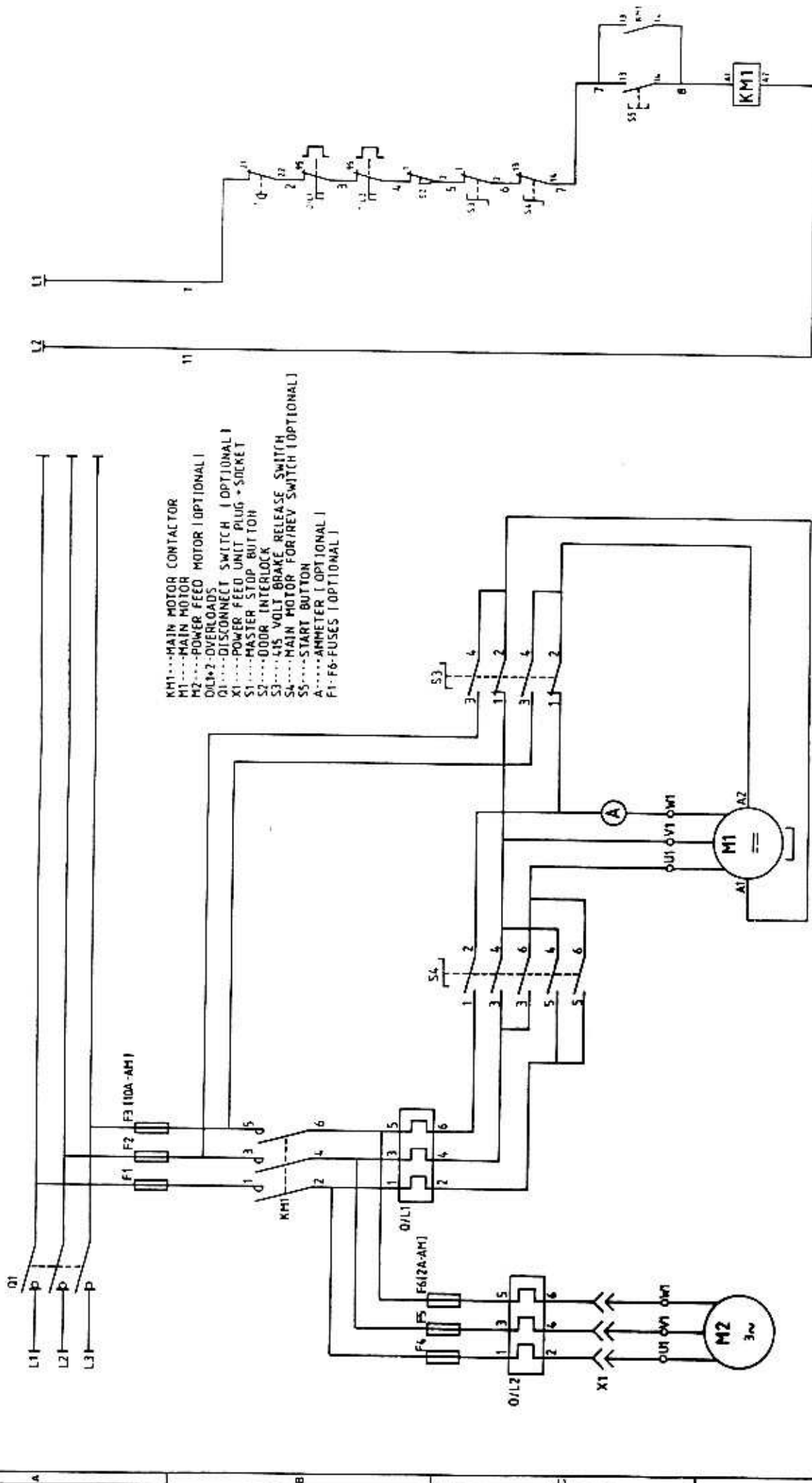
Key in desired address

Press >

Preprogrammed position in displayed

Press Start

The machine moves to displayed position.



- KM1...MAIN MOTOR CONTACTOR
- M1...MAIN MOTOR
- M2...POWER FEED MOTOR (OPTIONAL)
- Q1...DISCONNECT SWITCH (OPTIONAL)
- X1...POWER FEED UNIT PLUG + SOCKET
- S1...MASTER STOP BUTTON
- S2...DOOR INTERLOCK
- S3...415 VOLT BRAKE RELEASE SWITCH
- S4...MAIN MOTOR FORWARD RELEASE SWITCH (OPTIONAL)
- S5...START BUTTON
- A...AMMETER (OPTIONAL)
- F1-F6-FUSES (OPTIONAL)

ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE STATED

FIRST ANGLE PROJECTION

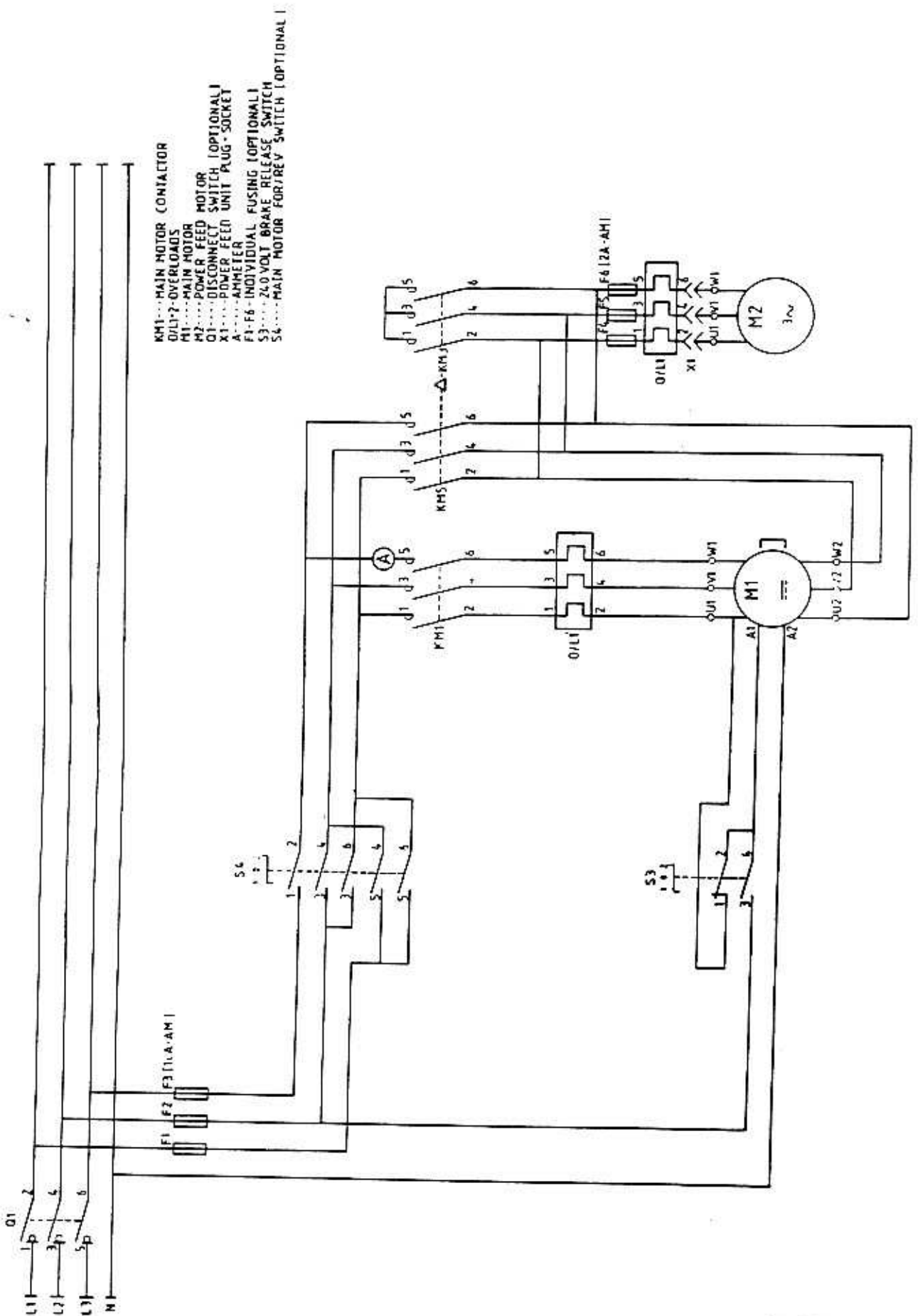
3	ECN
DATE	2 ECN
DATE	1 ECN
DATE	01/74

DRAWN BY	P.A.
CHECKED BY	
ISSUE DATE	11-2-91
ECN No.	01074

DESCRIPTION: M1: SPINDLE MOULDER DIAGRAM [A15, B1AKE] D.O.L MACHINE WITH ALL OPTIONS

Wadkin Durham Fence Houses Type & Wear

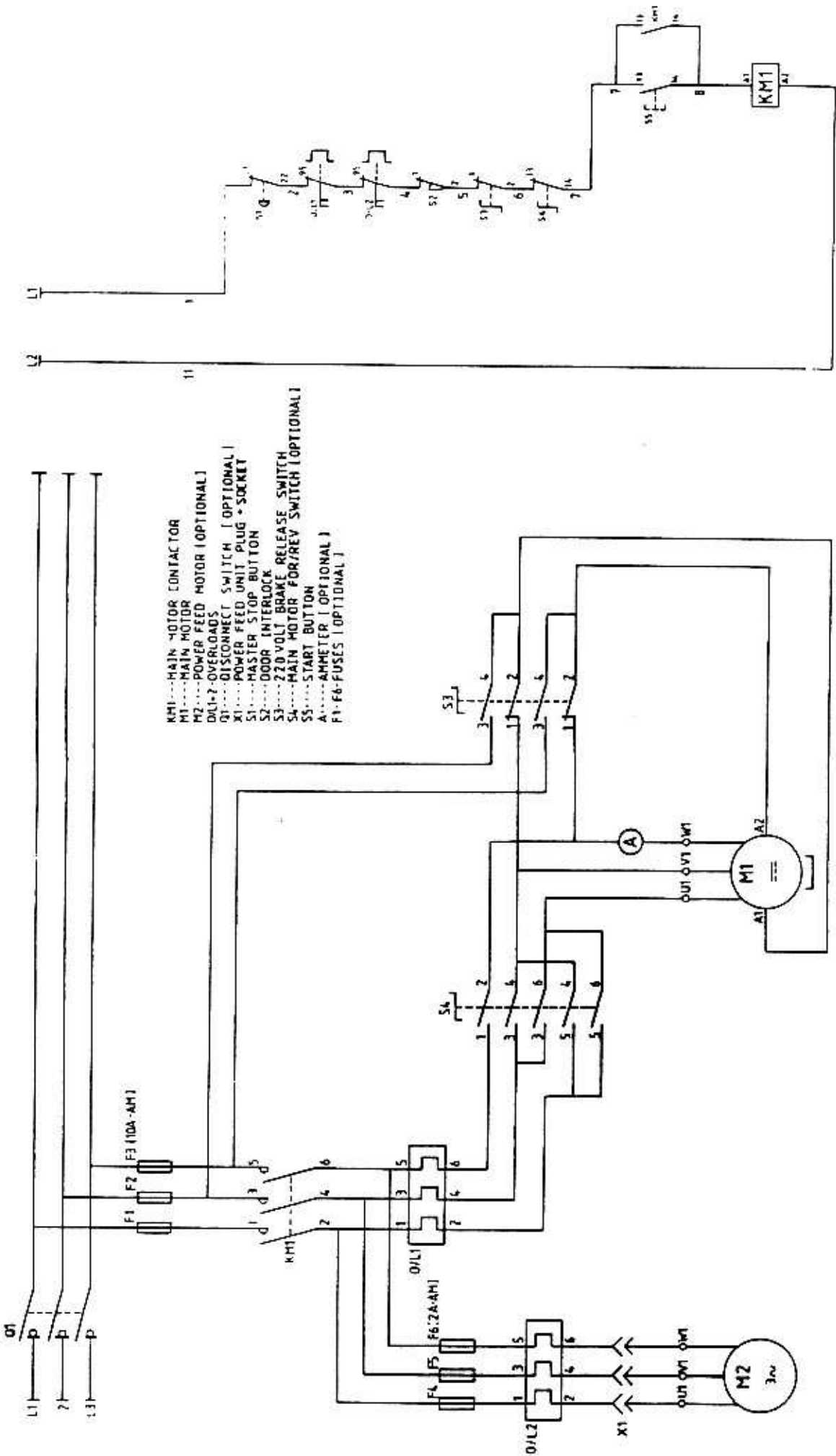
SCALE	PART NO
	BEL-4-WD



GENERAL TOLERANCES UNLESS SPECIFIED

DIMENSIONS: 1st AS MANUFACTURED, 2nd AS SHOWN, 3rd AS NOTED
 FINISH: 1st AS MANUFACTURED, 2nd AS SHOWN, 3rd AS NOTED
 MATERIAL: 1st AS MANUFACTURED, 2nd AS SHOWN, 3rd AS NOTED
 ALL DIMENSIONS TO UNLESS SPECIFIED OTHERWISE

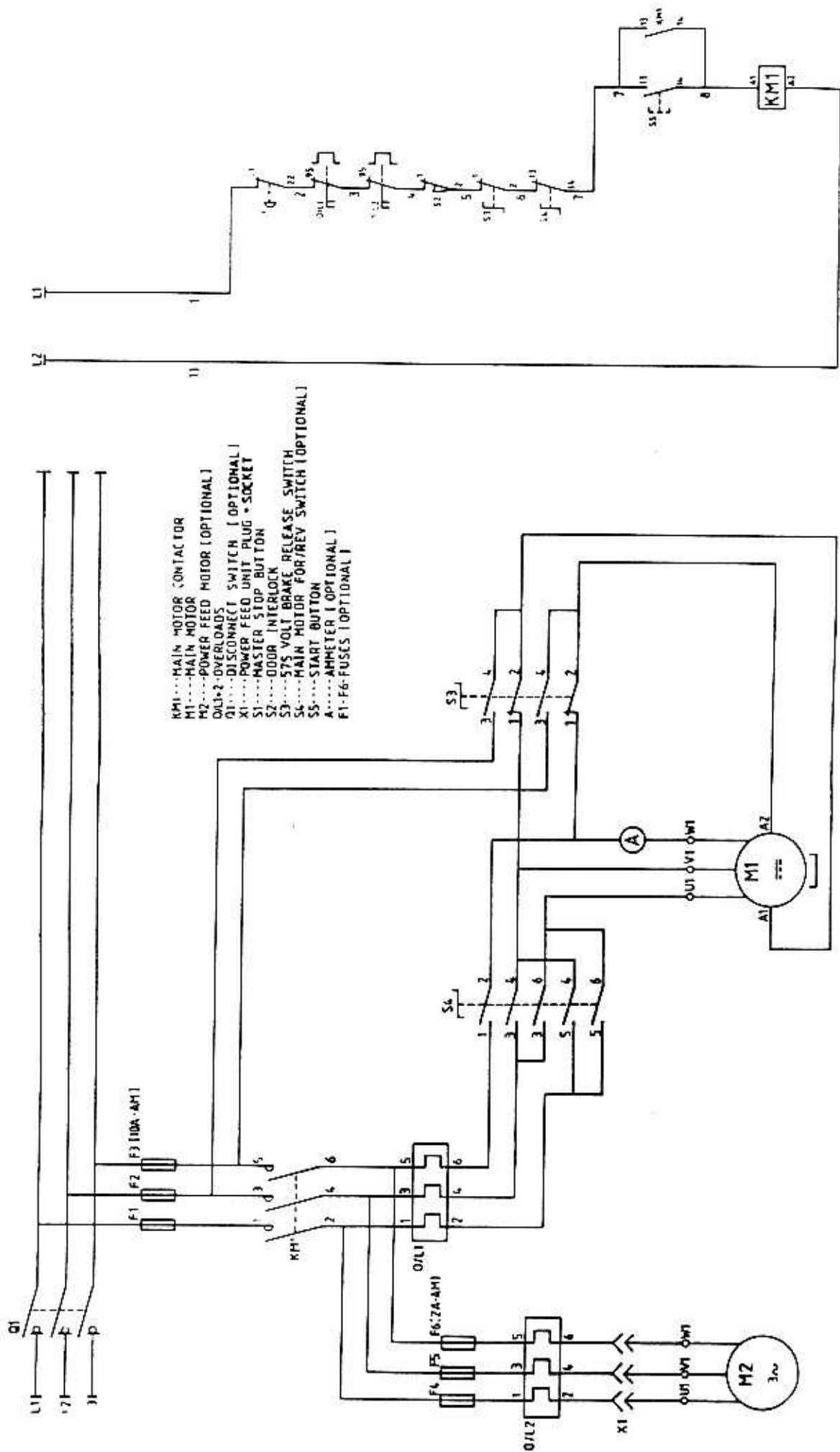
3	ECN	2	ECN	1	ECN	0	ECN	0	ECN	0	ECN	0	ECN	0	ECN
DRAWN BY PA CHECKED BY [Signature] ISSUE DATE 19-2-91 ECN NO 01674															
Wadkin Durham Fence Houses Tyne & Wear DESCRIPTION MK 11 SPINDLE MOULDER DIAGRAMS 240V/3PH 5/11 SHEET 11 OF 11															
												QTY	MATERIAL		
												SCALE	PART NO		
													BEL-7-WD		



- KM1---MAIN MOTOR CONTACTOR
- M1---MAIN MOTOR
- M2---POWER FEED MOTOR (OPTIONAL)
- OC1-2---OVERLOADS
- X1---DISCONNECT SWITCH (OPTIONAL)
- X1---POWER FEED UNIT PLUG + SOCKET
- S1---MASTER STOP BUTTON
- S2---DOOR INTERLOCK
- S3---220 VOLT BRAKE RELEASE SWITCH (OPTIONAL)
- S4---MAIN MOTOR FORWARD/REV SWITCH (OPTIONAL)
- S5---START BUTTON
- A---AMMETER (OPTIONAL)
- F1-F6---FUSES (OPTIONAL)

U.S.A.

DRAWN BY: P. A. CHECKED BY: [] ISSUE DATE: 11-7-52 E.C.N. No. [] DATE [] DATE [] DATE []			MATERIAL: [] PARTS No. [] SCHEMATIC: BEL-9-WD	
Wadkin Durham Fence Houses Tyne & Wear				
DESCRIPTION: HW 11 SPINDLE Moulder 11" AGD 11" AMT 220V 60 DR 1/2" I D.O.L. MACHINE WITH ALL 3P-1 1/2" S.				



- KM1...MAIN MOTOR CONTACTOR
- M1...MAIN MOTOR
- M2...POWER FEED MOTOR (OPTIONAL)
- OVL2...OVERLOADS
- Q1...DISCONNECT SWITCH (OPTIONAL)
- X1...POWER FEED UNIT PLUG + SOCKET
- S1...MASTER STOP BUTTON
- S2...DOOR INTERLOCK
- S3...575 VOLT BRAKE RELEASE SWITCH (OPTIONAL)
- S4...MAIN MOTOR FOR/REV SWITCH (OPTIONAL)
- S5...START BUTTON
- A...AMMETER (OPTIONAL)
- F1-F6-FUSES (OPTIONAL)

CANADA

DRAWN BY		P. A.	MATERIAL	
CHECKED BY			SCALE	
ISSUE DATE		11 2-91	PART NO.	
E.C.N. No.		01072	BEL 10-WD	
E.C.N.		2	DESCRIPTION	
E.C.N.		3	Wadkin Durham Fence Houses Tyne & Wear	
E.C.N.		4	MK II SPINDLE POUOLDER DIAGRAM (S75 + H100 + F1)	
E.C.N.		5	D.O.L. MACHINE WITH ALL OPTIONS	

