

IMPORTANT

It is our policy and that of our suppliers to review constantly the design and capacity of our products. With this in mind we would remind our customers that whilst 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 latest developments to enhance performance, dimensions and supplies may vary from those illustrated.



PLEASE INSERT SERIAL NUMBER OF MACHINE

Instruction Manual For

BEL

Medium Duty Spindle Moulder

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FOR REPLACEMENT PARTS, TOOLS AND ACCESSORIES

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Bursgreen (Durham), Division of Wadkin PLC, Fence Houses, Houghton le Spring,
Tyne & Wear, England, DH4 5RQ

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.

The Bursgreen Divisions of 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 Woodworking Machines Regulations 1974. All guards should be used and adjusted correctly.
2. Safe methods of working only should be adopted as given in the Health and Safety Work Booklet No. 41, "Safety in the use of Woodworking Machines", (obtainable from Her Majesty's Stationery Office) and as advised by The Bursgreen Divisions of Wadkin plc.
3. Only personnel trained in the safe use of a machine should operate it.
4. Before making adjustments or clearing chips, etc., the machine should be stopped and all movement should have ceased.
5. All tools and cutters must be securely fixed and the speed selected must be appropriate for the tooling.

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 Bursgreen

Bursgreen (Durham) Division of Wadkin plc., Fence Houses, Houghton-le-Spring, Tyne & Wear, DH4 5RQ.
Telephone: (0385) 852385. Telex: 53441 (Burdram G)

Safety

CAREFULLY READ INSTRUCTION MANUAL WITH PARTICULAR REFERENCE TO THE FOLLOWING INSTRUCTIONS:-

1. SLINGING, i.e. SAFE LIFTING LIMITS FOR SLINGS ETC.
2. INSTALLATION AND FOUNDATION, i.e. SAFE WORKING AREA OF MACHINE AND BOLT POSITIONS, ETC.
3. WIRING DETAILS, i.e. WIRING DIAGRAM AND INSTRUCTIONS FOR SAFE WIRING OF MACHINE.
4. MACHINE CONTROLS AND OPERATING INSTRUCTIONS.
5. SELECT CORRECT SPEED FOR CUTTER EQUIPMENT AND ENSURE CUTTERS ARE SECURELY LOCKED IN POSITION.
6. SET GUARDS CORRECTLY TO COVER CUTTER EQUIPMENT AS MUCH AS POSSIBLE.
7. NOTE START/STOP CONTROL POSITION AND ISOLATOR SWITCH POSITION (IF FITTED) BEFORE OPERATING MACHINE.
8. USE FEEDING DEVICES WHERE POSSIBLE.
9. REFER TO HEALTH AND SAFETY AT WORK BOOKLET No.41 (IN U.K.) FOR SAFETY IN THE USE OF WOODWORKING MACHINERY.

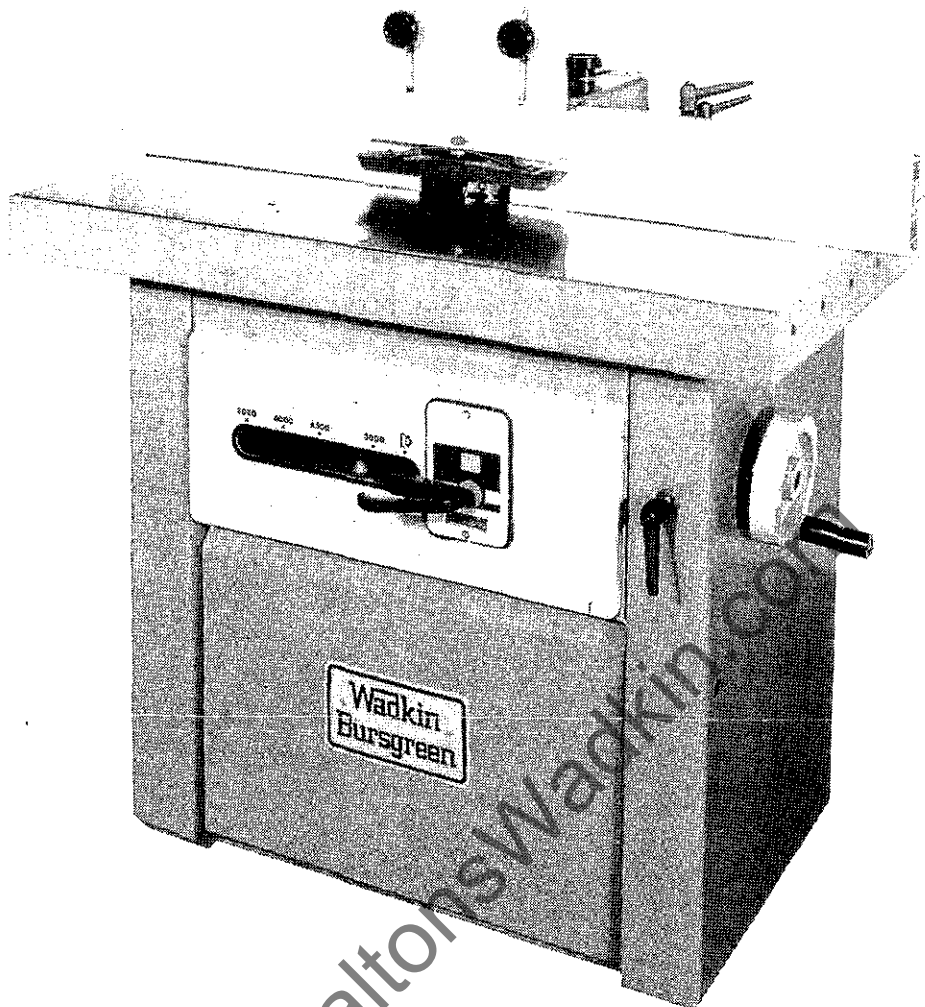


FIG.1

SPECIFICATIONBEL

Diameter of loose top piece (Std)	30mm
Diameter of loose top pieces (Optional)	35mm 1¼" or 1"
Table size	650 x 1000mm
Table height	900mm
Spindle rise and fall	127mm
Power of motor	4 kw
Spindle speed	3000, 4500, 6000, 8000 rpm
Approximate floor space	650 x 1000mm
Approximate net weight	290 kg
Approximate gross weight	370 kg
Shipping dimensions	1.10 x 0.76 x 1.07m

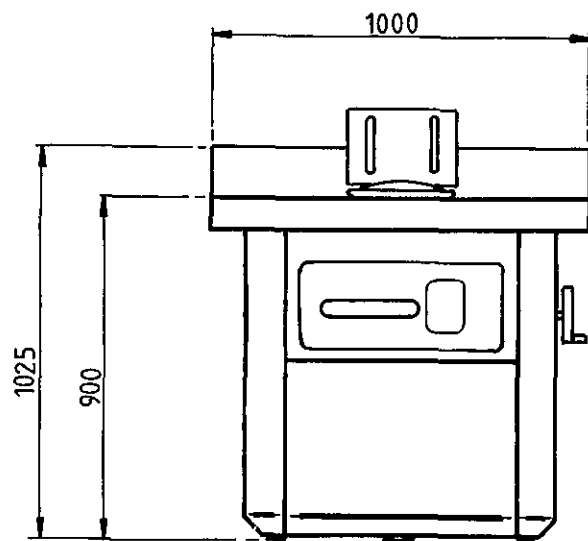


STANDARD ITEMS DESPATCH WITH MACHINE

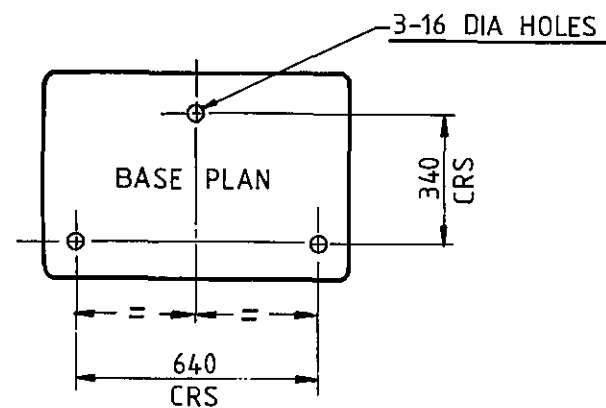
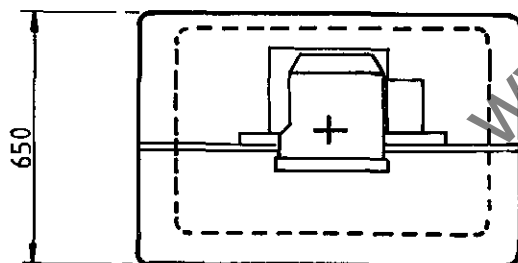
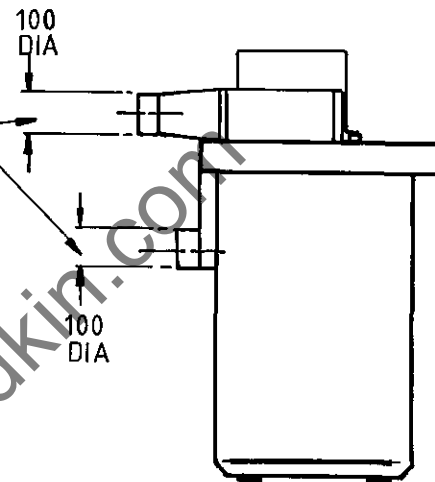
- 1 - Instruction Manual
- 1 - BEL/92 Box Spanner
- 1 - 14mm Long Arm Hexagon Wrench
- 2 - HN12 'C' Spanner
- 1 - 17mm A/F S.E. Spanner
- 1 - 8mm Hexagon Wrench

FIG. 2

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DUST OUTLETS (EXTRA)
VOLUME OF AIR TO BE
EXTRACTED = 375 C.F.M.



FOUNDATION PLAN FOR BEL

FIG. 3

WIRING DIAGRAM FOR
3 PHASE SUPPLY

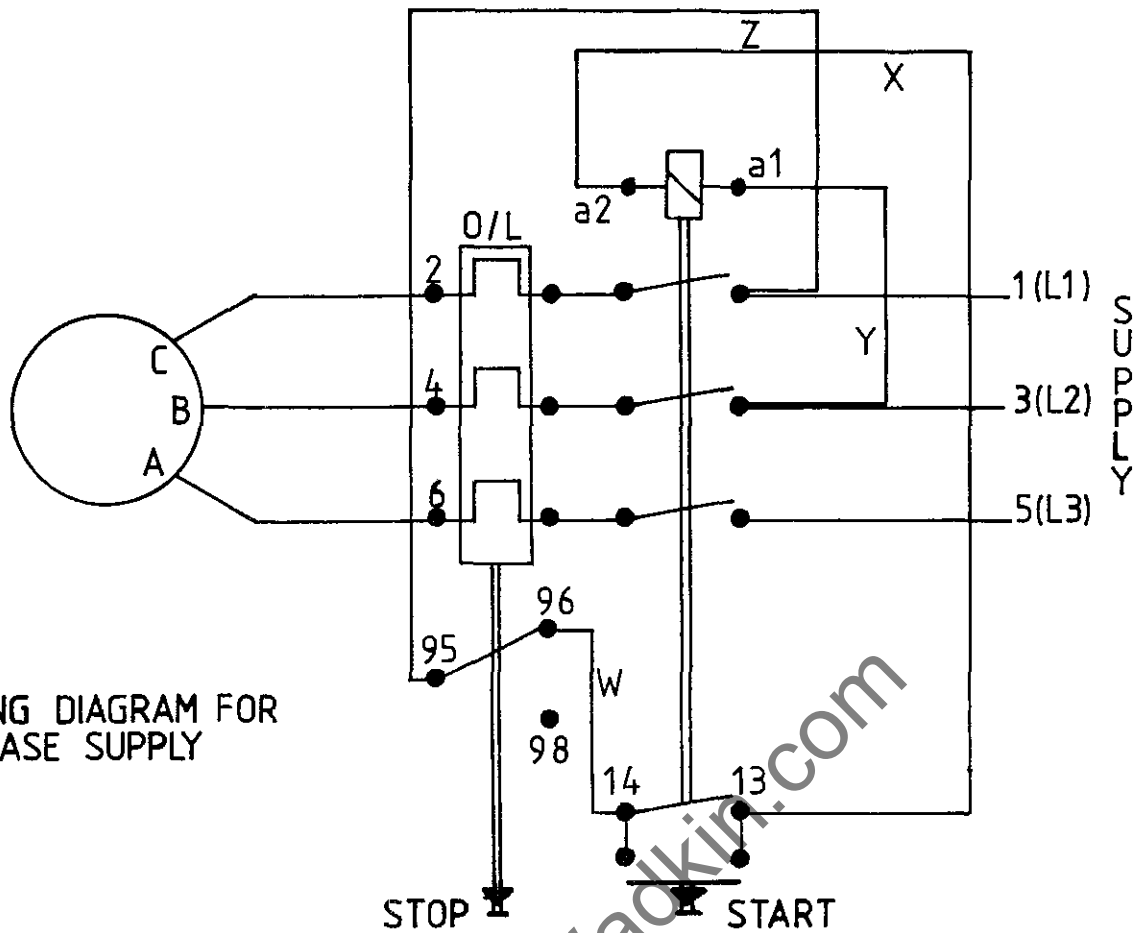
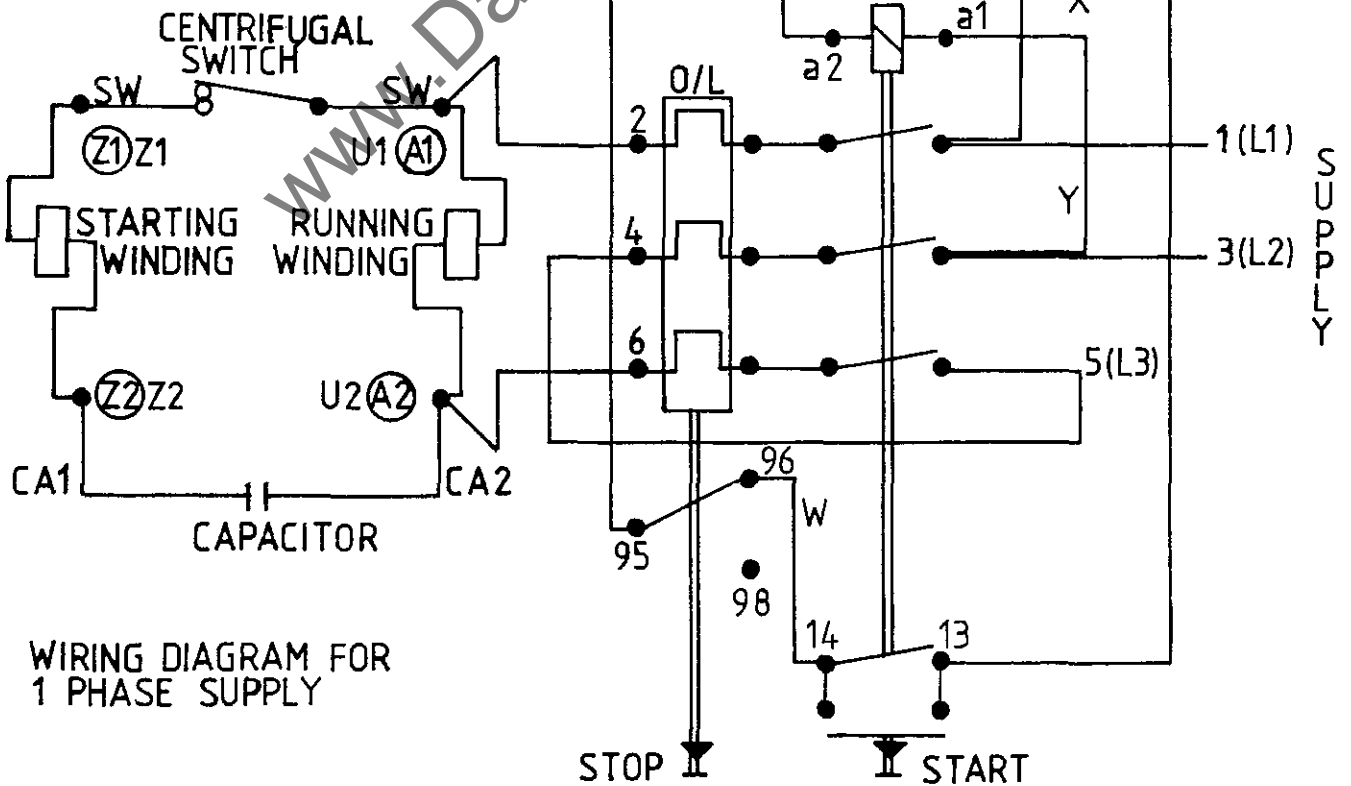


FIG. 4

TO CHANGE DIRECTION OF
ROTATION INTERCHANGE LEADS
ON TERMINALS Z1 & Z2



WIRING DIAGRAM FOR
1 PHASE SUPPLY

FIG. 5

SLINGING

Always use a sling with in safe working load of machine weight.

BEL - Approximate net weight of machine 290 kgs.

BEL - Approximate gross weight of machine 370 kgs.

To sling machine, position sling under table overhang at left and right hand 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.

INSTALLATION

Remove protective coating from bright parts by applying a cloth soaked in paraffin, turpentine or other solvent. Machine should be so placed that the traffic of men and materials to and from it fits smoothly into the general scheme of traffic. Machine should be so placed that it will not be necessary for the operator to stand in or near an aisle as to cause a hazard. The minimum clearance on each working side of machine should be at least 750mm greater than the length of the largest material worked on the machine.

FOUNDATION

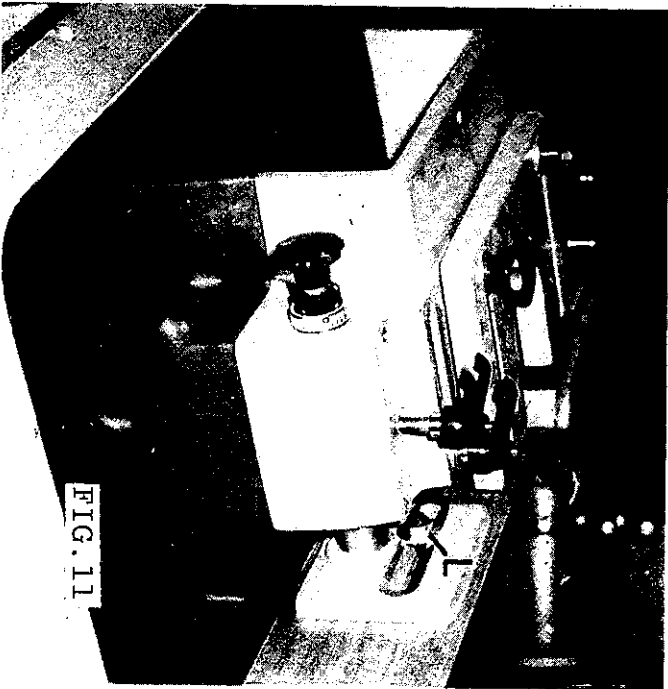
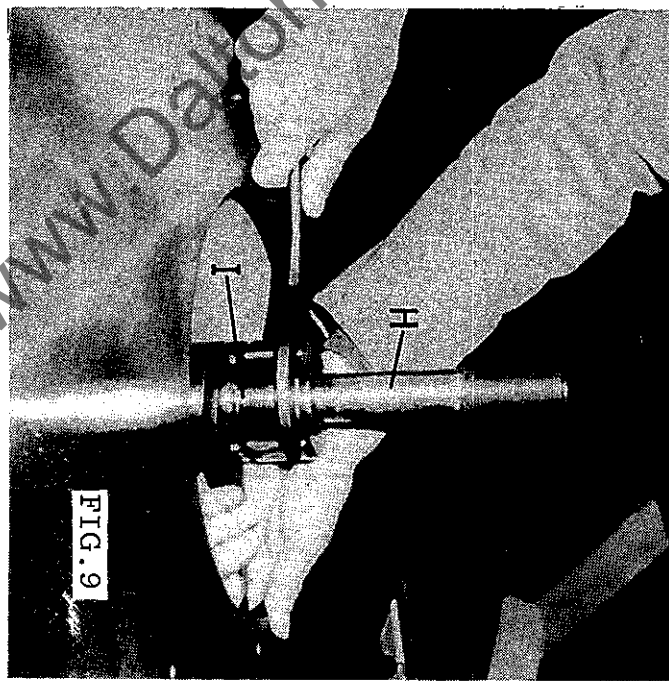
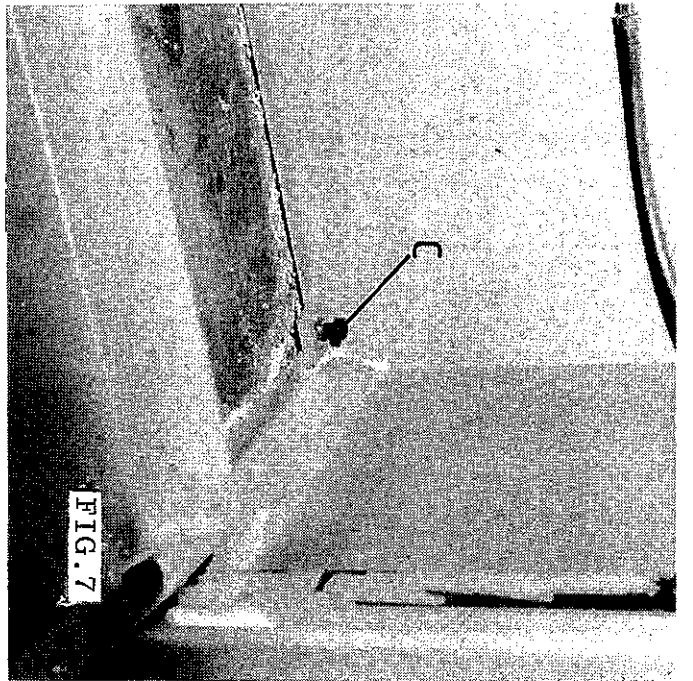
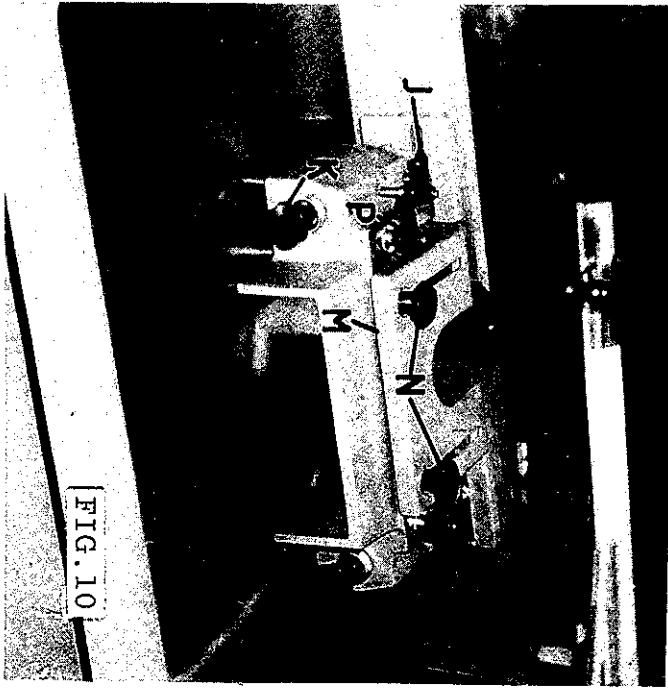
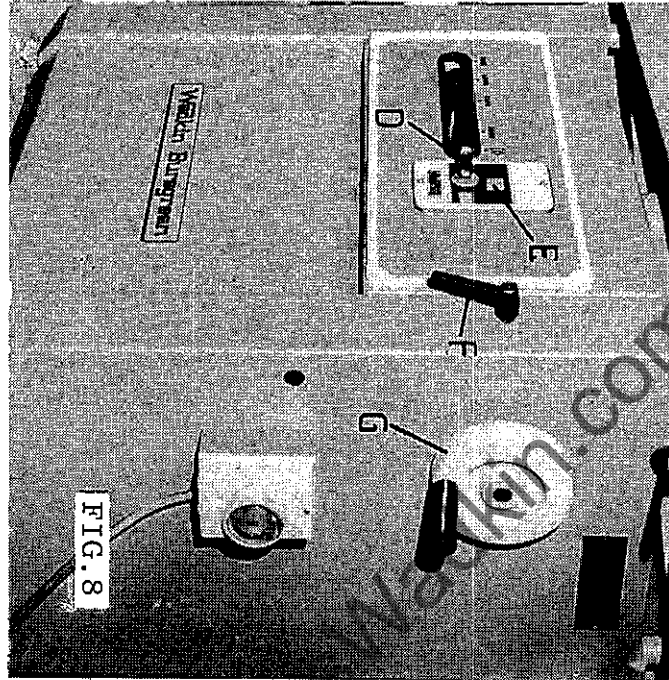
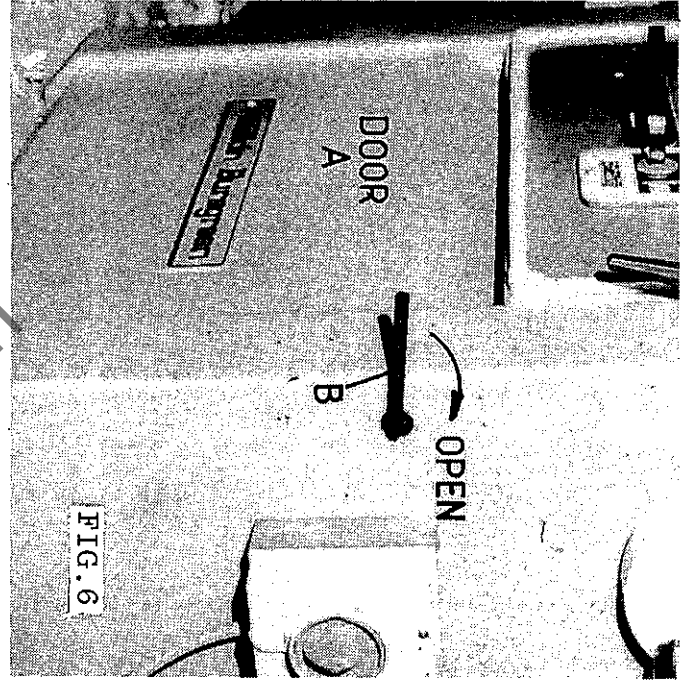
Ensure floor is level, then mark to suit 3 - M12 rawlbolts, refer to foundation plan FIG.3. Drill floor to suit rawlbolts. These bolts are not supplied with the machine, but can be supplied at an additional charge. To obtain access to foundation bolts and stabilizing bolts, open front access door "A" FIG.6, at both sides with hexagon wrench "B" (supplied). Release 2 stabilizing bolts "C" FIG.7, bolt to floor, jack bolts "C" until they touch the floor, lock in position with locknuts. Re-lock front access door.

WIRING DETAILS

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 isolator when fitted.

Points to note when connecting to power supply:-

- 1) Check that the voltage, phase and frequency correspond to those on the motor plate, also that the correct coils and heaters are fitted to the starter.
- 2) It is important that the correct cable is used to give the correct voltage to the starter as running on a low voltage will damage the motor.
- 3) Check main line fuses are correct capacity. See fuse list inside front cover of instruction manual. .
- 4) Connect the line leads to the appropriate terminals. See wiring diagrams FIG.4 and FIG.5.
- 5) Check all connections are sound.
- 6) Check the rotation of the motor for the correct direction. If this is incorrect, reverse any two of the line lead connections for 3 phase supply.



LUBRICATION

It is advisable to keep all bright parts covered with a thin film of oil to prevent rusting. All bearings are sealed for life and require no lubrication.

SPINDLE SPEED CHANGE

FREE POSITION

With speed change handle 'D' FIG.8 in position shown, the spindle will not start. This is the 'free' position and allows the spindle to be spun by hand to check cutter clearances.

RUNNING

To run machine, pull speed change handle 'D' FIG.8 away from stop button and engage 3000 rpm position. The spindle can now be started by pressing start button 'E' FIG.8. Change speed by moving speed change handle to speed required with spindle running.

BRAKE

Brake is automatically engaged when stop button is pressed.

NOTE: DO NOT USE SPEED CHANGE HANDLE TO STOP MACHINE.

SAFETY WARNING: SELECT CORRECT SPEED FOR CUTTER EQUIPMENT.
(Maximum recommended speed is stamped on cutterblock).

RAISE AND LOWER OF SPINDLE

Maximum spindle travel is 127mm.

To rise and fall spindle loosen locking handle 'F' FIG.8 and turn handwheel 'G' to required height.

Whilst rise and fall movement of the spindle provides an immediate adjustment of cutter height, further adjustments outside range can be affected by re-positioning collars on work spindle.

NOTE: 1 FULL TURN OF HANDWHEEL = 2mm VERTICAL ADJUSTMENT.

WORK SPINDLE INSTALLATION

The 3 removeable table rings give 4 table openings 280, 202, 162 and 80mm dia.

Select required table opening before proceeding to fit work spindle. To insert work spindle, follow undermentioned procedure:-

Locate work spindle 'H' FIG.9, into main spindle through table opening taking care to ensure that work and main spindle seatings are completely free from all burrs, dirt and rust. Smear a thin film of oil on work spindle seating before inserting, then align peg in work spindle with slot in main spindle and press onto seating. Replace spindle locknut 'I' FIG.9 on main spindle, firmly locking the work spindle in position.

WARNING: ALWAYS ENSURE AT ALL TIMES THAT THE WORK SPINDLE IS SECURELY HELD BY THE SPINDLE LOCKNUT BEFORE STARTING MACHINE.

For method of locking and unlocking tooling, refer to FIG.12.

FENCE ADJUSTMENT

Each fence plate can be independently adjusted by loosening the required locking handle "J" FIG.10 and turning the appropriate handwheel "K". When set, relock handle "J".

For lengthwise movement of fence plates, loosen locknut "L" FIG.11, position fence plate as required, then tighten locknut "L".

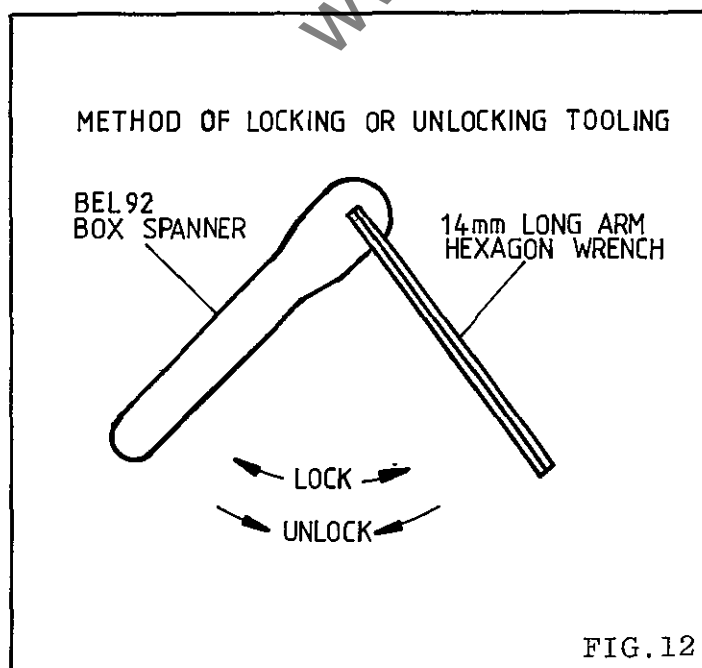
NOTE: THE FENCE PLATES MUST BE LOCKED IN ALL POSITIONS WHEN MACHINE IS IN USE.

A safety guard "M" FIG.10, is fitted to fence and is adjustable to protect the operator from the rotating cutters. To adjust guard, loosen the 2 handwheels "N", position guard to cover cutters as much as possible, then relock handwheels "N".

The complete fence unit can be sent 90 degrees to right of spindle. To set fence in this position, loosen locking handles "P", lift fence complete and position 90 degrees to right of spindle, relock studs into table with locking handles "P".

SAFETY NOTE

If machine is used for more than 6 hours in every week, then under 1974 Woodworking Machine Regulations, machine should be connected to dust exhaust system. Should machine be used for less than above period, then we suggest that a guard be produced from drawing (see page 13) and secured to rear of fence by M10 x 20 long hexagon head bolt.

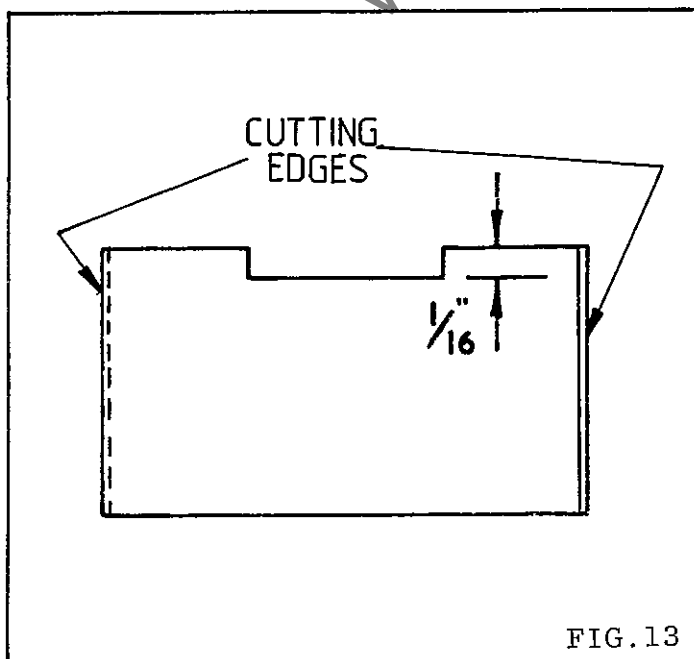


ISOLATOR SWITCH (EXTRA)

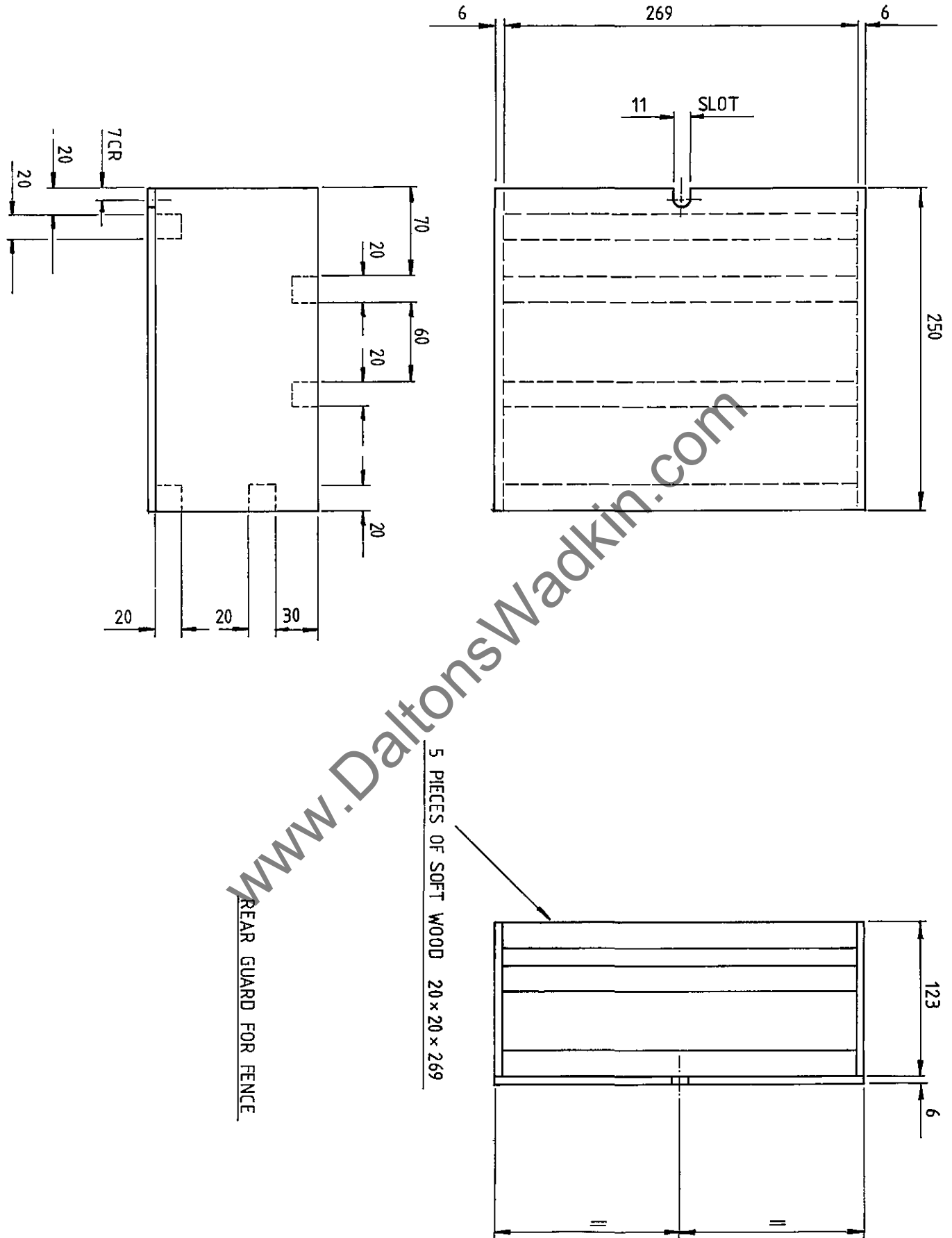
An electrical isolator switch, FIG.8 , can be supplied with machine as an optional extra.

GENERAL HINTS

- 1 Always select the correct speed for the cutter equipment being used. WADKIN BURSGREEN cutterblocks are normally stamped with the maximum permissible speed, but this may need to be reduced dependent on shape and general condition of cutters being used.
- 2 Use sharp cutters which should be reasonably well balanced.
- 3 Ensure the cutters are tight on the blocks before starting machine. Use spanners provided and never a piece of piping to obtain greater leverage. This will strain the nuts and bolts and ultimately make them unsafe.
- 4 Never pack the cutters with sandpaper. This is most dangerous as the grit collapses when the cutter is working and the cutter works loose. For packing use one thickness only of brown paper.
- 5 Keep nuts and bolts clean and keep oil on the threads.
- 6 Never run the cutter equipment at higher than the recommended speed.
- 7 Always use the guards available to ensure maximum protection.
- 8 Make good robust jigs and ensure that the parts are located securely on the jig.
- 9 Always isolate the machine electrically when changing cutter equipment or performing maintenance, etc.
- 10 Always notch cutters for french spindles as shown in FIG.13 for the spindle locking bolt to locate the cutter.



Application	APPROVED LUBRICANTS					
	Castrol	B.P.	Shell	Esso	Texaco/Caltex	Wadkin
Worm Boxes	ZN220	Energol CS320	Vitrea 320	Spartan EP220	Regal Oil 320	L2
General Lubrication	Magna 68	Energol HP68	Vitrea 68	Nuray	Ursa Oil P68	L4
Pneumatic Lubricators	Hyspin AWS32	Energol HL32	Tellus 37	Nuto H32	Rando Oil HD32	
Grease	Spheerol AP3	Energol L53	Alvania R3	Beacon 3	Regal Starfak Premium 3	L6
Brake Cables	Brake Cable grease	Energol L21M	Alvania R3	Esso Multi-purpose grease		



MACHINE PARTS LIST

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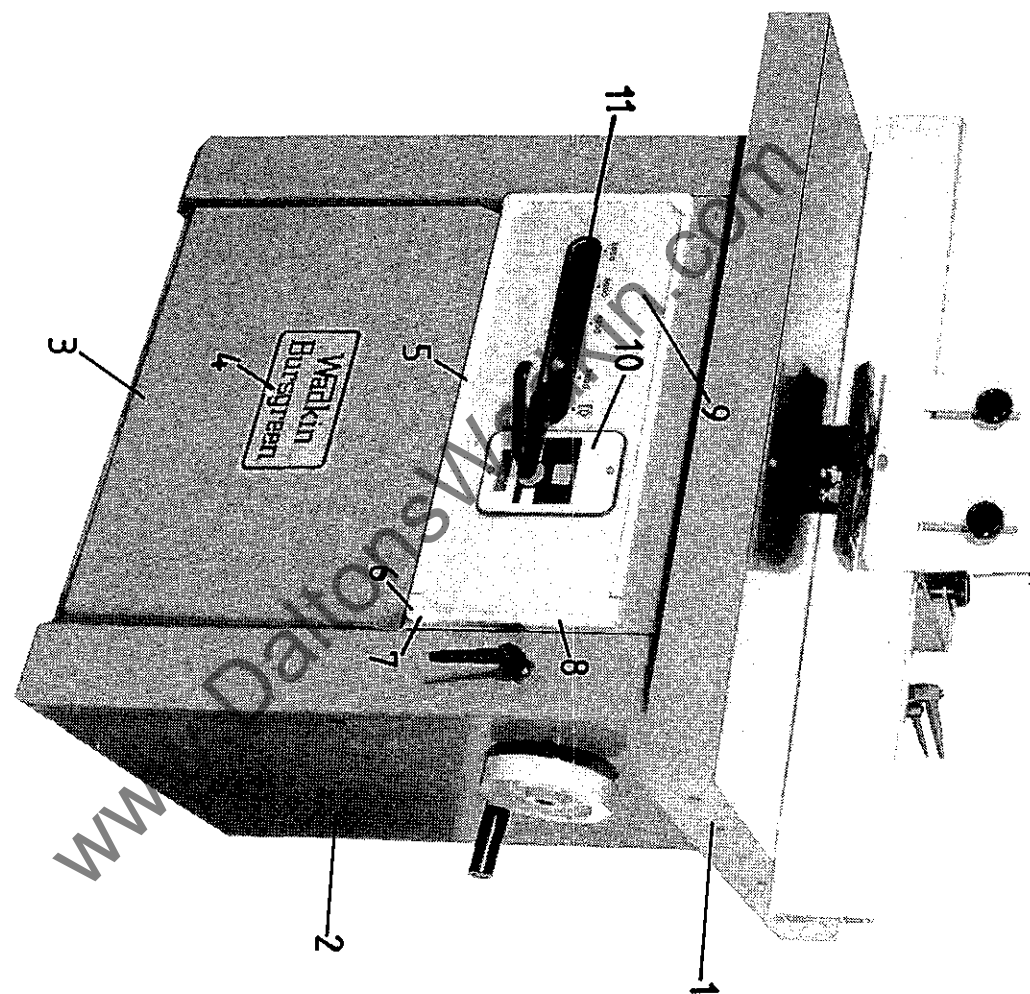
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ILLUSTRATED PARTS LIST

ASSEMBLY:- BASE			
FIG ITEM	PART NO. *	UNITS PER ASSEMBLY	DESCRIPTION
1	BEL/1	1	Main Table
2	BEL/4	1	Base
3	BEL/7	1	Door
4	C-S-348	1	Nameplate
5	BEL/108	2	Extrusion for control plate
6	BEL/52	4	Cap for Corner Moulding
7	BEL/51	4	Corner Moulding
8	BEL/107	2	Extrusion for Control Plate
9	BEL/48	1	Control Plate
10	847ADSF	1	Starter
11	BEL 104	1	Change Lever Stop Nut
	BEL 105	1	Change Lever Stop Washer
		1	Knurled Grip Knob

- ITEM NOT ILLUSTRATED



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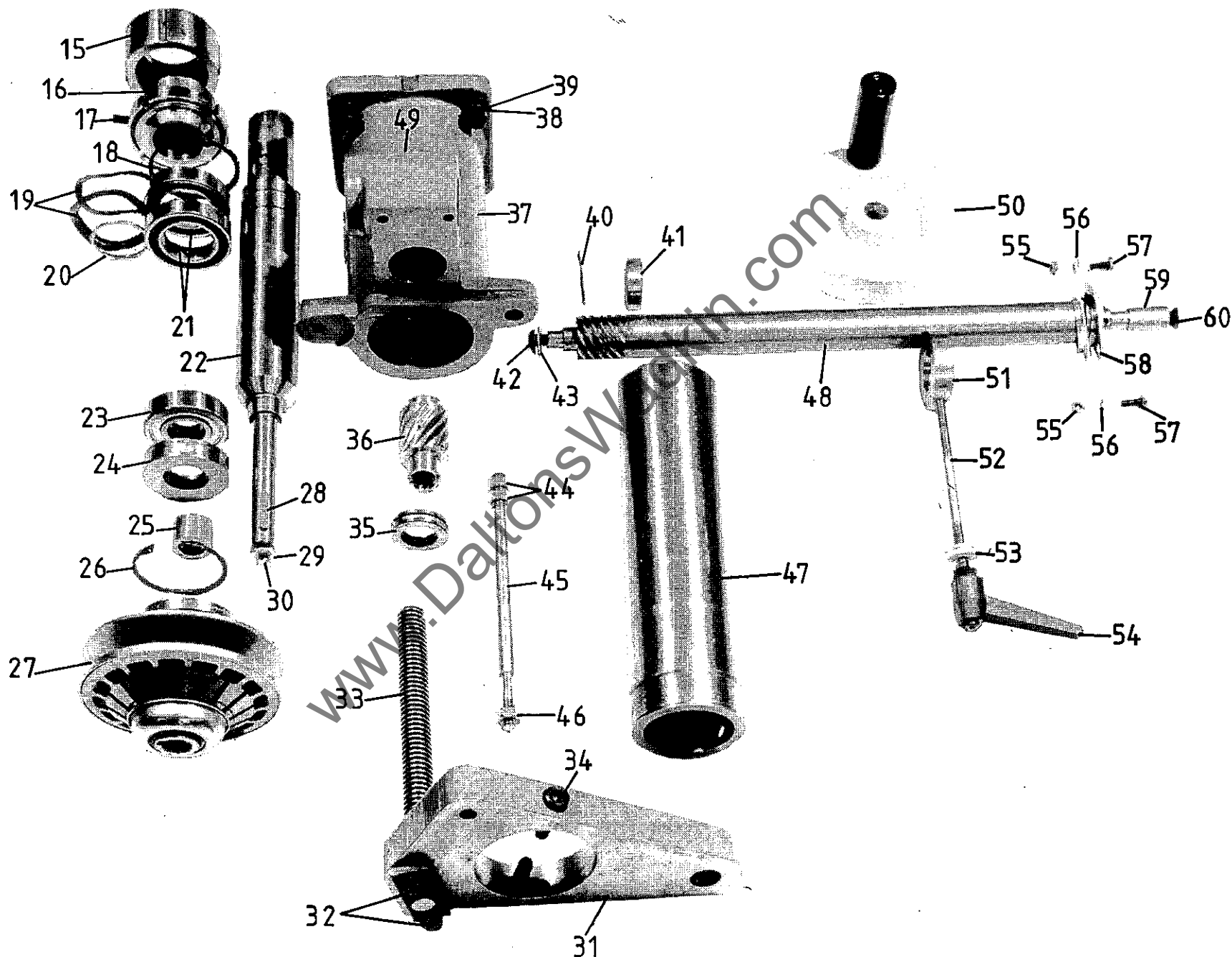
ILLUSTRATED PARTS LIST

ASSEMBLY:- MAIN SPINDLE AND RISE AND FALL

FIG ITEM	PART NO. *	UNITS PER ASSEMBLY	DESCRIPTION
15	BEL/15	1	Main Spindle Nut
16	BEL/14	1	Spindle Adaptor Nut
17	K05-26-571	1	M8 x 16 Long Nylok Socket Set Screws
18	K51-10-210	1	7000 068 Internal Circlip
19	K51-88-809	3	EPL50 Pre-Load Washer
20	BEL/16	1	Top Bearing Spacer
21	K06-01-950	2	6008-2Z Bearings
22	BEL/13	1	Main Spindle
23	K06-01-951	1	6305-2Z Bearing
24	BEL/17	1	Bottom Bearing Spacer
25	BEL/33	1	Spindle Pulley Spacer
26	K51-10-207	1	7000 062 Internal Circlip
27	K51-59-105	1	Variable Speed Pulley Type 11.213.13.920 Stockline No. E2-53.178
28	K05-20-106	1	6 x 6 x 35 Long Feather Key
29	BEL/188	1	Spindle Washer
30		1	M10 x 25 Long Nylok Socket Capscrew
31	BEL/8	1	Quill Base Plate
32		2	M8 x 20 Nylok Socket Capscrews
33	BEL/20	1	Rise and Fall Screw
34		2	M10 x 30 Long Socket Capscrews
35	K06-04-134	1	51105 Thrust Race
36	BEL/36	1	Rise and Fall Gear
37	BEL/3	1	Rise and Fall Housing
38	K05-28-155	4	10mm Spring Washers
39		4	M10 x 30 Long Nylok Socket Capscrews
40	K51-10-204	1	7000 042 Internal Circlip
41	K06-01-955	1	6302- 2Z Ball Bearing
42		1	M10 x 16 Long Socket Button Head Screw
43	P32/289	1	Washer
44	K05-27-111	2	M12 Locknuts
45	BEL/25	1	Rise and Fall Stop Rod
46	K05-27-104	1	M12 Nut
47	BEL/6	1	Rise and Fall Quill
48	BEL/35	1	Rise and Fall Shaft
49		1	M6 Grease Nipple
50	K51-27-208	1	Handwheel
51	BEL/73	1	Collar
52	BEL/111	1	Rise and Fall Clamp Stud
53	K51-66-153	1	18 Dia Rubber Grommet
54	K51-27-191	1	M10 Locking Handle
55	K05-27-101	2	M6 Nuts
56	K05-28-102	2	6mm Washers
57	K05-25-502	2	M6 x 16 Long Hexagon Set Screws
58	K06-30-405	1	SLFL 16 "Self-Lube" Pressed Flange Bearing Unit
59	BEL/24	1	Tapered Bush for Handwheel
60	K05-25-340	1	M10 x 20 Long Countersunk Socket Screw

- ITEM NOT ILLUSTRATED

* PLEASE QUOTE PART & MACHINE
NUMBER WHEN ORDERING SPARES



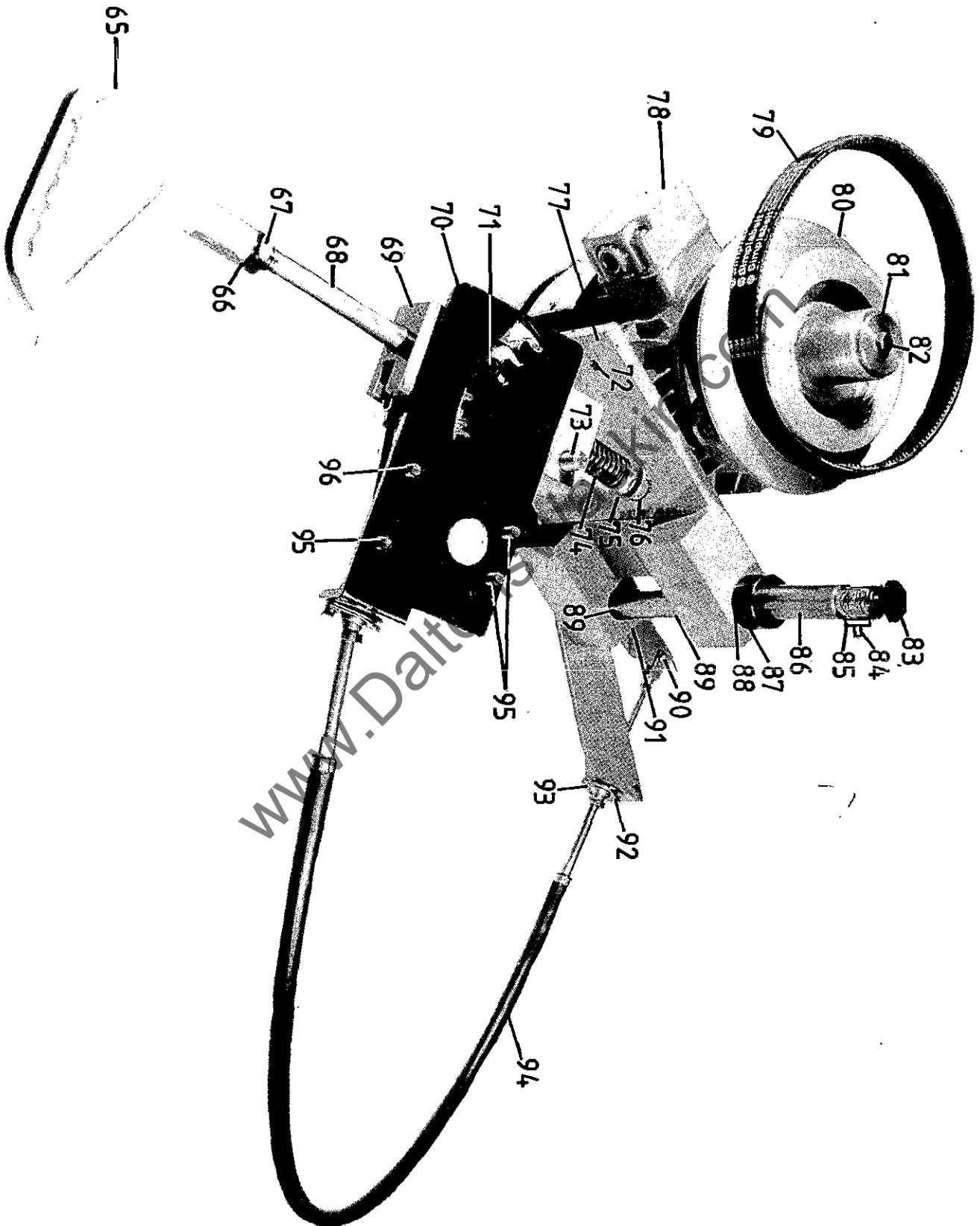
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ILLUSTRATED PARTS LIST

ASSEMBLY:- SPEED CHANGE AND DRIVE

FIG ITEM	PART NO. *	UNITS PER ASSEMBLY	DESCRIPTION
65	BEL/89	1	Speed Change Handle
66	K05-28-106	1	16mm Washer
67	K05-27-112	1	M16 Locknut
68	BEL/28	1	Speed Change Lever
69	BEL/26	1	Bracket for Speed Change Lever
70	BEL/21	1	Rise and Fall Thrust Plate
71		1	M8 x 45 Long Socket Capscrew
72	K05-25-529	3	M10 x 20 Long Hexagon Set Screws
	K05-25-532	1	M10 x 35 Long Hexagon Set Screw
73	BEL/27	1	Pivot Pin
74	K51-73-138	1	ETS153 Compression Spring
75	BEL/130	1	Spring Retaining Washer
76	K51-70-405	1	7100 016 External Circlip
77	BEL/62	1	Motor Mounting Bracket
78		1	Brooks T.E.F.C. Brake Motor 100L Frame 4Kw 415v, 3PH, 50 Cycle, 3000rpm, terminal box at 9'oclock
79	K51-04-655	1	Simplabelt Wide Section - V - Belt 22/800 Stockline No E5.27.934
80	BEL/12	1	Motor Pulley
81	BEL/189	1	Motor Spindle Washer
82		1	M8 x 25 Long Sylok Socket Capscrew
83		1	M20 Aerotight Nut
84	K05-25-165	1	M6 x 16 Long Socket Capscrew
85	BEL/213	1	Key for Motor Pivot
86	BEL/217	1	Motor Pivot Bar Assembly
87	K05-26-125	2	M8 x 10 Long Socket Set Screws
88	K05-28-295	1	Collar
89	K51-05-120	2	30 O/D x 25 I/D x 30 Long Oilite Bushes
90	BEL/32	1	Inner Cable Anchor Bracket
91	BEL/128	1	Spacer for Motor Bracket
92		4	M4 x 16 Long Hexagon Set Screws
93		4	M4 Aerotight Nuts
94	K51-11-251	1	Bowdenflex Cable Type 55, 48" Long, 4" Stroke
95	K05-25-186	3	M8 x 16 Long Socket Capscrews
96	K05-25-332	1	M8 x 16 Long Countersunk Socket Head Screw



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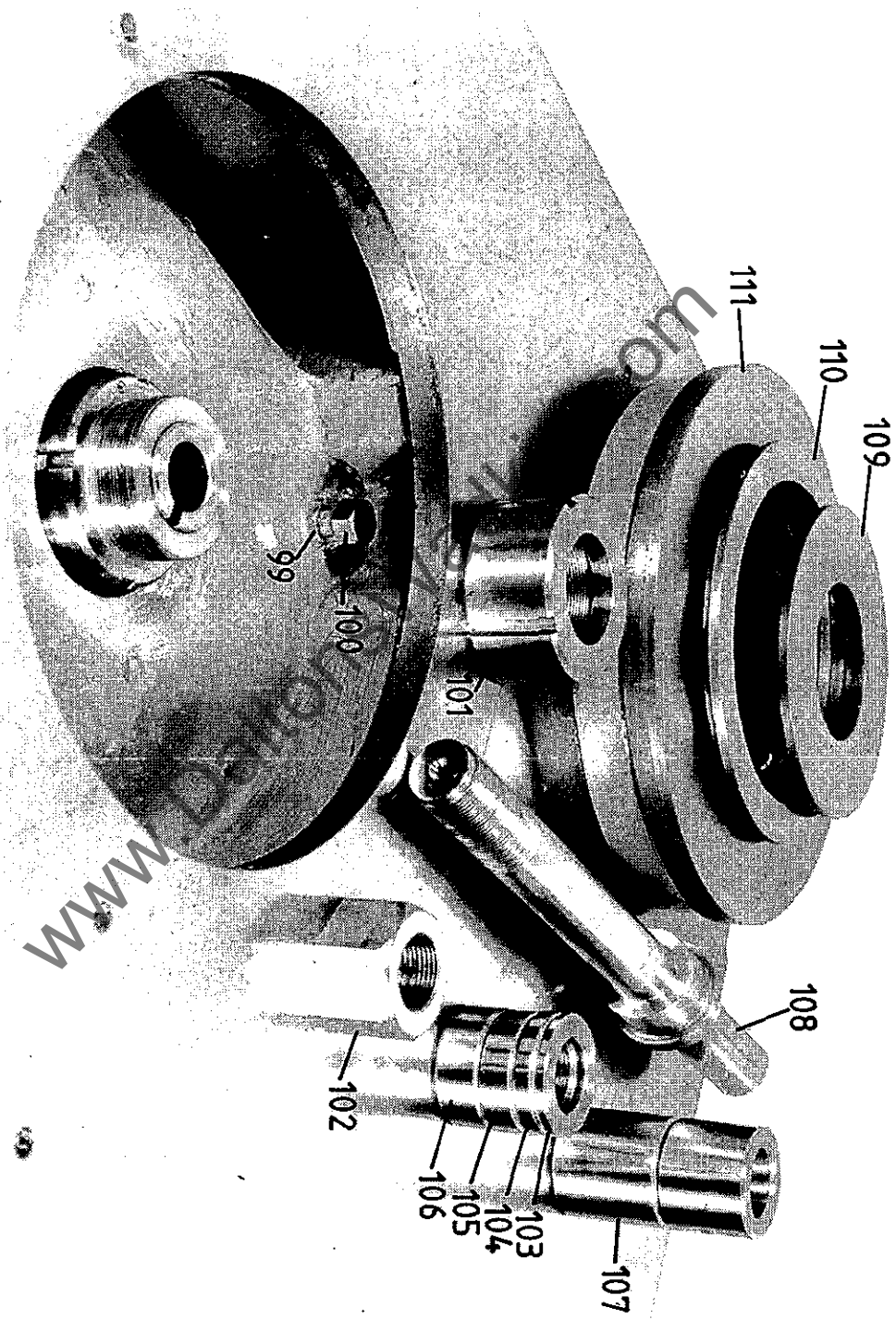
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ILLUSTRATED PARTS LIST

ASSEMBLY:- TABLE RINGS AND WORK SPINDLE

FIG ITEM	PART NO. *	UNITS PER ASSEMBLY	DESCRIPTION
99	K05-27-103	3	M10 Nuts
100	BEL/34	3	Jacking Bolts for Table Rings
101	BEL/15	1	Main Spindle Nut
102	BEL/133	1	30mm Dia Work Spindle Nut
103	1057/139	1	30mm Dia Spacing Collar - 5mm Long
104	1057/515	1	30mm Dia Spacing Collar - 10mm Long
105	1057/516	1	30mm Dia Spacing Collar - 15mm Long
106	1057/517	1	30mm Dia Spacing Collar - 20mm Long
107	1057/519	1	30mm Dia Spacing Collar - 50mm Long
108	BEL/96	1	30mm Dia Work Spindle
109	EM/453	1	Small Table Ring
110	EM/454	1	Medium Table Ring
111	BEL/11	1	280 Dia Table Ring

- ITEM NOT ILLUSTRATED



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ILLUSTRATED PARTS LIST

ASSEMBLY:- FENCE			
FIG ITEM	PART NO. *	UNITS PER ASSEMBLY	DESCRIPTION
115	1057-504	1	Cast Iron Fence Plates - R.H. (Home Market)
	EM-87	1	Wood Fence Plate - R.H. (Export Market)
116		2	M12 x 45 Long Studs
117	1026-396	2	Washers
118		2	M12 Nuts
119	EM-66	2	Fence Plate Brackets
120	K51-27-190	4	M12 Locking Handles
121	EM-182	2	Locking Studs for Fence Bracket
122		4	M12 x 12 Long Socket Set Screws
123	1026-22	4	Washers
124	EM-202	2	Locking Studs for Fence
125	EM-62	2	Fence Adjusting Screws
126	K51-10-406	2	7100-020 External Circlips
127	EM-64	2	Bushes for Adjusting Screws
128	EM-63	2	Collars for Adjusting Screws
129		2	3 Dia x 30 Long Groverlok Dowels
130	1079-1650	2	Graduated Collars
131	K51-27-146	2	2 1/2" Dia Handwheels, 12mm Plain Bore
132	EM-121	1	Top Cover for Fence (Home Market)
	EM-194	1	Visor for Fence Cover (Home Market)
	EM-93	1	Top Cover for Fence (Export Market)
133	EM-65	1	Fence Body
134		2	M12 x 165 Long Studs (Home Market)
		2	M12 x 55 Long Studs (Export Market)
135	K51-27-145	2	2 1/2" Dia Handwheels, M12 Tapped
136	1057-458	1	Cast Iron Fence Plate - L.H. (Home Market)
	EM-86	1	Wood Fence Plate - L.H. (Export Market)

- ITEM NOT ILLUSTRATED

* PLEASE QUOTE PART & MACHINE
NUMBER WHEN ORDERING SPARES

