WADKIN 'WINDOWLINE' COMBINED TENONING AND MOULDING MACHINE MODEL 'WMC'

Instruction manual

P R E F A C E

IMPORTANT

IT IS OUR POLICY AND THAT OF OUR SUPPLIERS TO REVIEW CONSTANTLY THE DECISION AND CAPACITY OF OUR PRODUCTS. WITH THIS IN MIND WE WOULD REMIND OUR CUSTOMERS THAT WHILE THE DIMENSIONS AND THE 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.

H E A L T H A N D S A F E T Y

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 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 with 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 resupply the machine by way of sale, lease, hire or hire-purchase.

Persons 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 reasonably 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 correct setting up procedures are described in sections 1 to 3 of 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 devises are securely fitted, correctly adjusted and properly maintained.

Repairs and maintenance must only be undertaken by suitably qualified and competent technicians. Ensure that all power supplies are isolated before any maintenance work commences. Instructions for routine maintenance are given in Section 4 of this manual.

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 to cut 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 particals 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 applicances.

Prevention or control of wood dust exposure should, so far as is reasonably practicable, be achieved by measures **OTHER** than the provision 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: Hazards and Precuations	IND(S)10(L)1987
Control Hardwood Dust:	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 person is likely to be exposed to a continuous equivalent noise level of 90 dB(A) or more, over an 8 hour working day. Additionally, suitable ear protectors must be provided, maintained and worn.

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 "Ear protection 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.

S A F E G U A R D I N G M A C H I N E S

To comply with the Woodworking Machines Regulations 1974, operators must ensure that they fully understand the instructions given and have received sufficient 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 directions to 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 the 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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SECTION 1

GENERAL DESCRIPTION

BASIC MACHINE ELEMENTS.

The WMC series is based on single end tenoning and profiling elements, utilising one or more spindles per element with highly efficient precision stacked tooling.

Eight basic elements can be built up to form the various configurations in the series.

1) WMC XP - Single profiling element with optional auxiliary heads.

2) WMC XPC - Double profiling element with optional auxiliary heads.

3) WMC 1 - Single tenoning element (270 spindle) and hogging saw.

WMC 1XP - Single tenoning element WMC 1 linked to single profiling element WMC XP.

WMC 1XPC - Single tenoning element WMC 1 linked to double profiling element WMC XPC.

4) WMC 2 - Double tenoning element (270 spindles) and hogging saw.

5) WMC 3 - Double profiling element with optional auxiliary heads.

6) WMC 3XOP - Treble profiling element - Two fence side heads, one nearside head with optional auxiliary heads.

7) WMC 3/2XOP - Quadruple profiling element - Two fence side heads, two nearside heads with optional auxiliary heads.

WMC 5 - Double tenoning element WMC 2 linked to double profiling element WMC 3.

WMC 5XOP - Double tenoning element WMC 2 linked to treble profiling element WMC 3XOP.

WMC 5/2XOP - Double tenoning element WMC 2 linked to quadruple profiling element WMC 3/2XOP.

8) WMC 6 - Single tenoning element (600 spindle) and cut-off or hogging saw.

WMC 6XPC - Single tenoning element WMC 6 linked to double profiling element WMC XPC.

A top/bottom planing unit is normally fitted to machines with outside profiling heads i.e. XOP range.

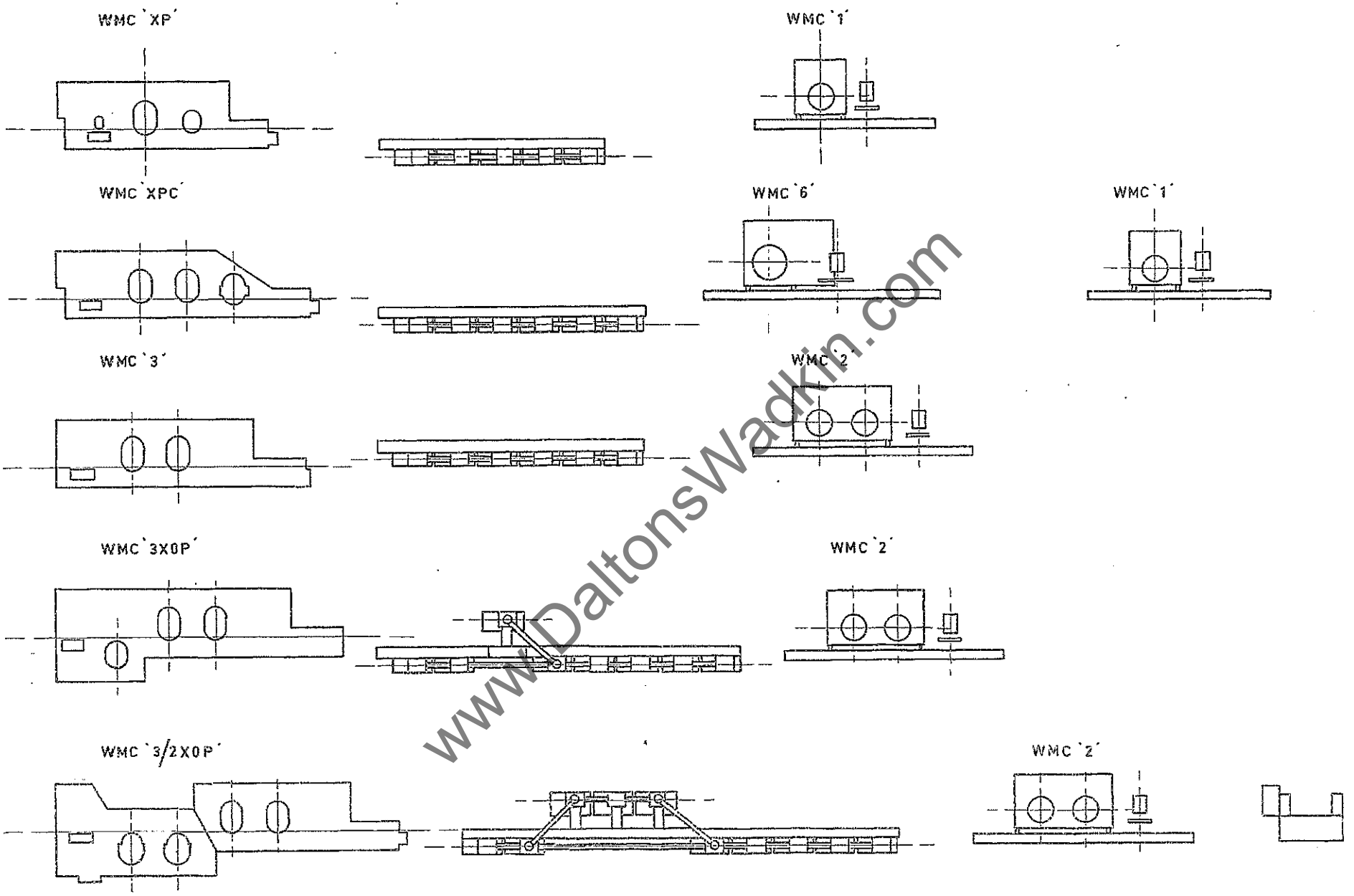


FIG.1 BASIC MACHINE ELEMENTS

L E A D I N G P A R T I C U L A R S

PRINCIPAL DIMENSIONS AND CAPACITIES

TENONING SIDE

INFEED TABLE

Table size	850 x 290 mm
Feed speeds infinitely variable through cut	2-15m/Min
Motor	2.2KW (3HP)
Clamping by two pneumatic clamps and 'mouse'	

BACKPIECE

Automatic changeover (6 position)	240mm dia. or 260mm dia.

HOGGING SAW

Diameter of spindle	35mm K/W
Maximum size of saw (Hogging)	250mm dia
Maximum distance from edge of table	150mm
Maximum move	140mm
Maximum depth of cut	150mm
Maximum off cut	25mm
Motor	4KW(5.5HP)
Spindle speed	3000 RPM

CUT OFF SAW

Diameter of spindle	35mm K/W
Maximum size of saw (cut off)	400mm dia.
Maximum distance from edge of table	160mm
Maximum move	140mm
Maximum depth of cut	150mm
Maximum off cut	-
Motor	4 KW(5.5HP)
Spindle speed	3000 RPM

VERTICAL SPINDLE (COMBING)

Diameter of spindle	50mm
Usable length of spindle	270mm
Maximum rise and fall	185mm
Maximum side adjustment	140mm or 70mm
Maximum diameter of tool	350mm
Minimum diameter of tool	280mm
Motor	7.5KW(10HP)
Spindle speed 300mm dia.tooling	4000RPM
Spindle speed 350mm dia tooling	3500RPM

N.B. Diameter of tools established before delivery as extraction hoods are made to match.

STACK TOOLING - VERTICAL SPINDLE

Diameter of Spindle	50mm
Usable length of spindle	600mm
Maximum rise and fall	520mm
Maximum side adjustment	70mm
Maximum diameter of tool	380mm
Minimum diameter of tool	280mm
Motor	11 KW (15HP)
Spindle speed.	4000 RPM

PROFILING SECTION

FENCE SIDE VERTICAL SPINDLE

Diameter of spindle	50mm
Usable length of spindle	270mm
Maximum rise and fall	185mm
Maximum side adjustment	140mm or 70mm
Maximum diameter of tool	240mm
Minimum diameter of tool	140mm
Motor	7.5KW (10HP) 11 KW (15HP) OPT.
Spindle speed	6000 RPM

NEARSIDE VERTICAL SPINDLE

Diameter of spindle	50mm
Usable length of spindle	270mm
Maximum rise and fall	175mm
Maximum side adjustment	150mm
Maximum diameter of tool	240mm
Minimum diameter of tool	140mm
Motor	7.5KW (10HP) 11 KW (15HP) OPT.
Spindle speed	6000 RPM
Maximum width of timber	90mm
Minimum width of timber	40mm

SHORT VERTICAL SPINDLE

Diameter of spindle	35mm K/W
Maximum diameter of tool	240mm
Maximum side adjustment	70mm
Maximum rise and fall	20mm
Motor	3.7KW (5HP)
Spindle speed	4500/6000 RPM

AUXILIARY TOP HEAD (PNEUMATIC UP-DOWN)

Diameter of spindle	35mm K/W
Maximum diameter of tool	125mm or 200mm
Maximum side adjustment	35mm
Maximum rise and fall	80mm
Motor	2.2KW (3HP)
Spindle speed	4500/6000 RPM

AUXILIARY TOP HEAD (PNEUMATIC IN-OUT)

Diameter of spindle	35mm K/W
Maximum diameter of tool	125mm or 200mm
Maximum side adjustment	80mm
Maximum rise and fall	35mm
Motor	2.2KW (3HP)
Spindle speed	4500/6000 RPM

AUXILIARY OUTSIDE TOP HEAD (ELEC-MECH/IN-OUT)

Built in correct position to suit individual customer requirements.

Diameter of spindle	35mm K/W
Maximum diameter of tool	125m
Maximum depth of cut	15mm
Maximum side adjustment	35mm
Maximum rise and fall	16mm
Motor	2.2KW (3HP)
Spindle speed	4500/6000 RPM

AUXILIARY BOTTOM HEAD

Diameter of spindle	35mm K/W
Maximum diameter of tool	250mm
Maximum side adjustment	35mm
Maximum rise and fall	80mm
Motor	3.7KW (5HP)
Spindle speed	4500/6000 RPM

BOTTOM FINISH PLANING HEAD

Diameter of spindle		40mm K/W
Maximum diameter of tool		125mm
Maximum rise and fall		20mm
Motor		3.7KW (5HP)
Spindle speed	Specify	6000 or 7500 RPM

TOP FINISH PLANING HEAD

Diameter of spindle		40mm K/W
Maximum diameter of tool		125mm
Maximum rise and fall		110mm
Motor		3.7KW (5HP)
Spindle speed	Specify	6000 or 7500 RPM

FEED SYSTEM

Feed speed infinitely variable	4-20 M/Min
Maximum thickness accepted	160mm
Minimum thickness accepted	30mm
Minimum length of component	280mm
Maximum yield of rollers	20mm
Motor	2.2KW (3HP) or 1 KW (1.5HP)

FIG.2 HOGGING SAW

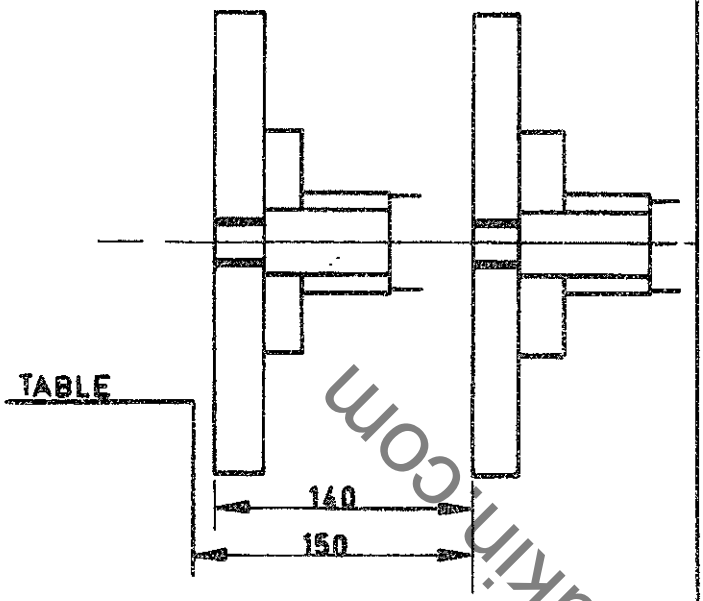


FIG.3 CUT-OFF SAW

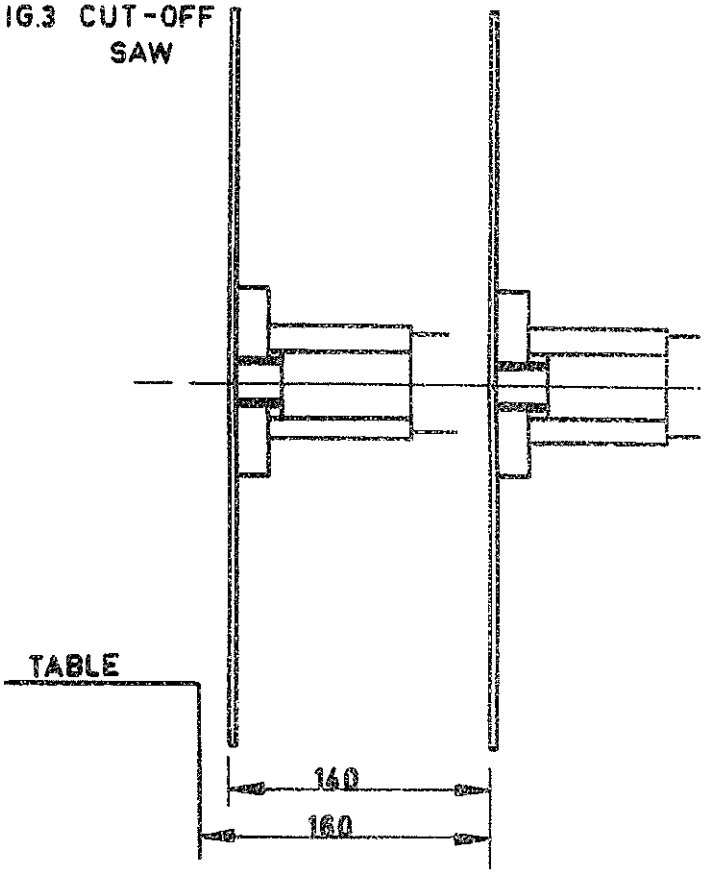


FIG.4 TOP AUXILIARY SPINDLE

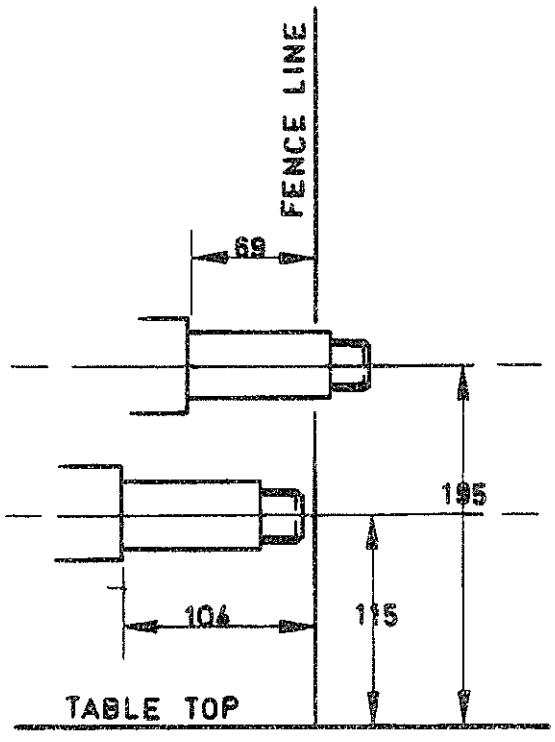
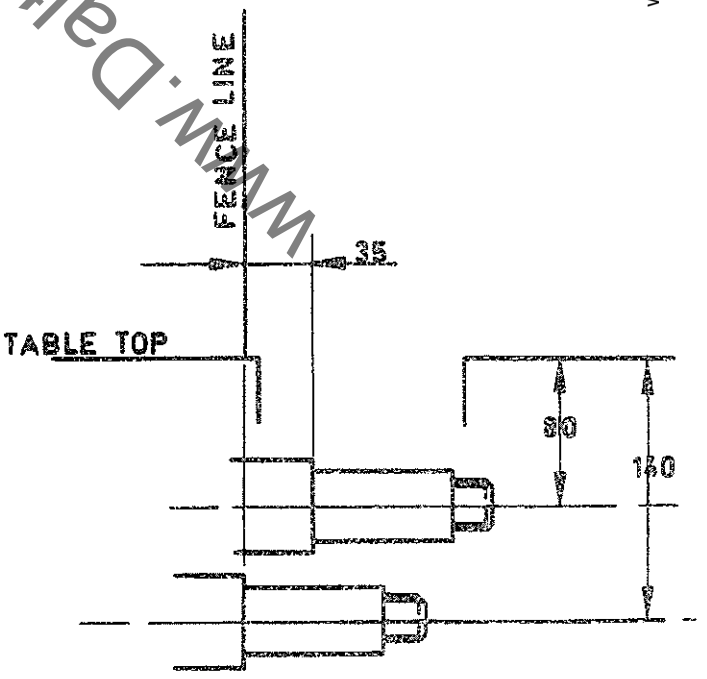


FIG.5 BOTTOM AUXILIARY SPINDLE



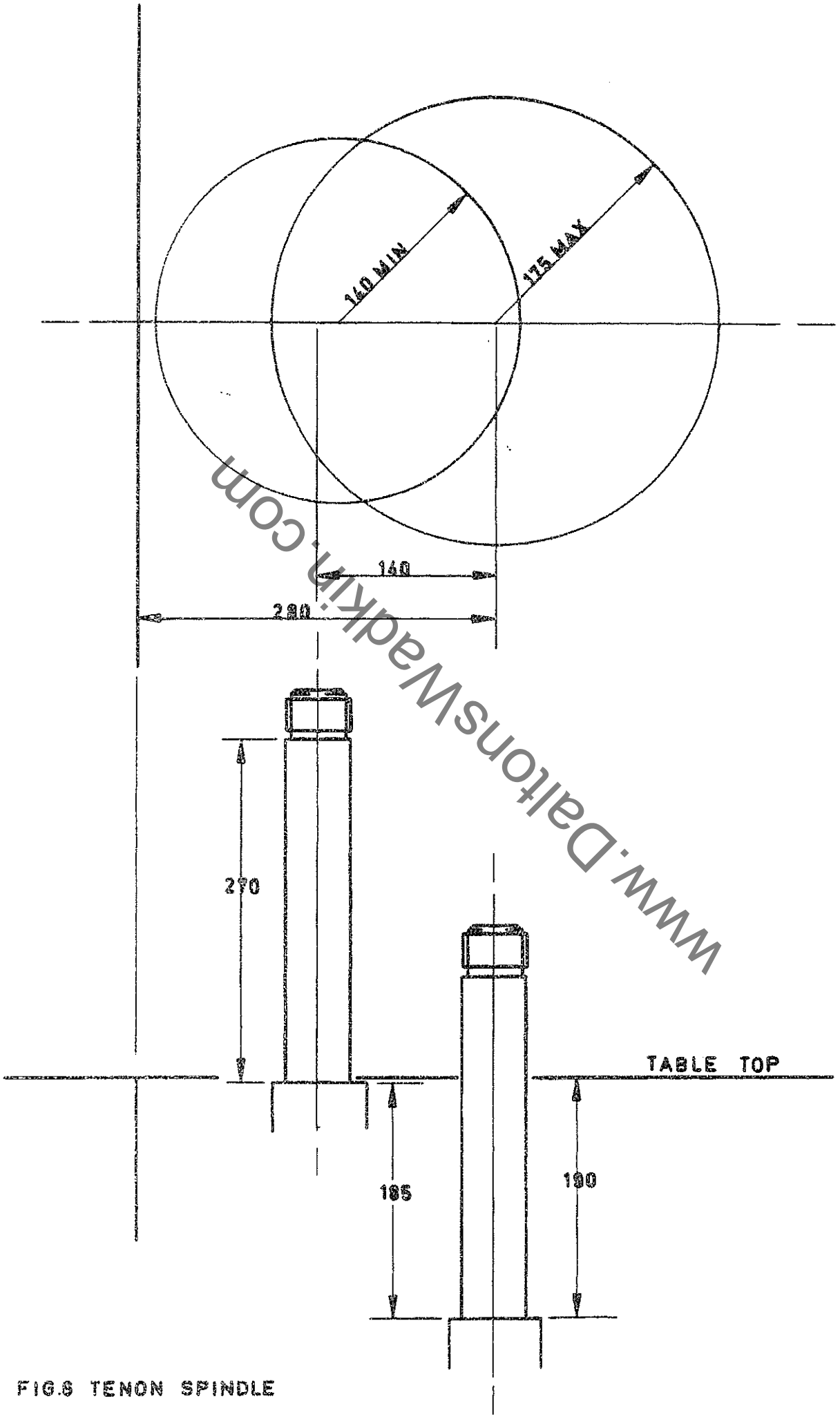


FIG.8 TENON SPINDLE

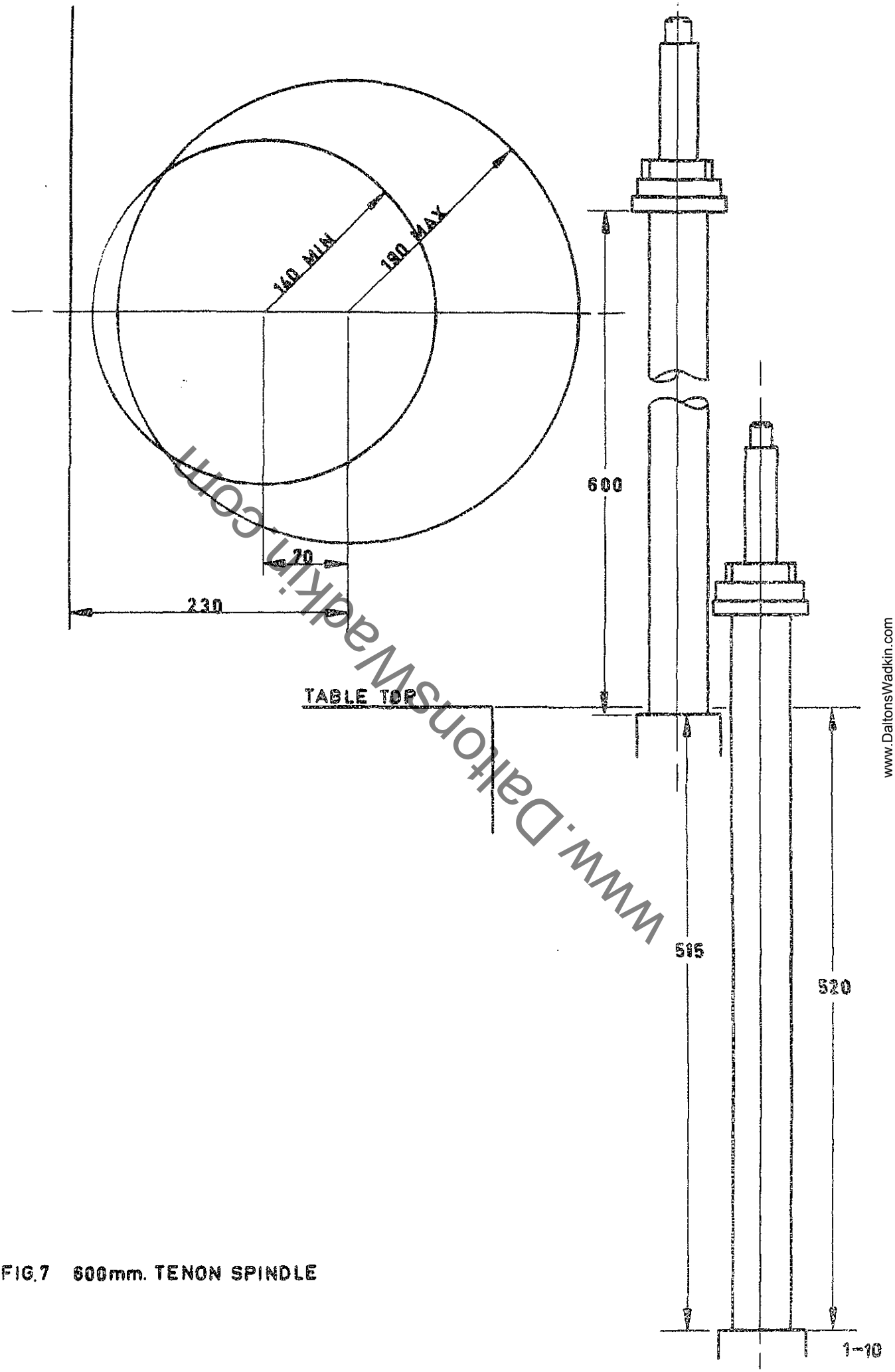


FIG.7 600mm. TENON SPINDLE

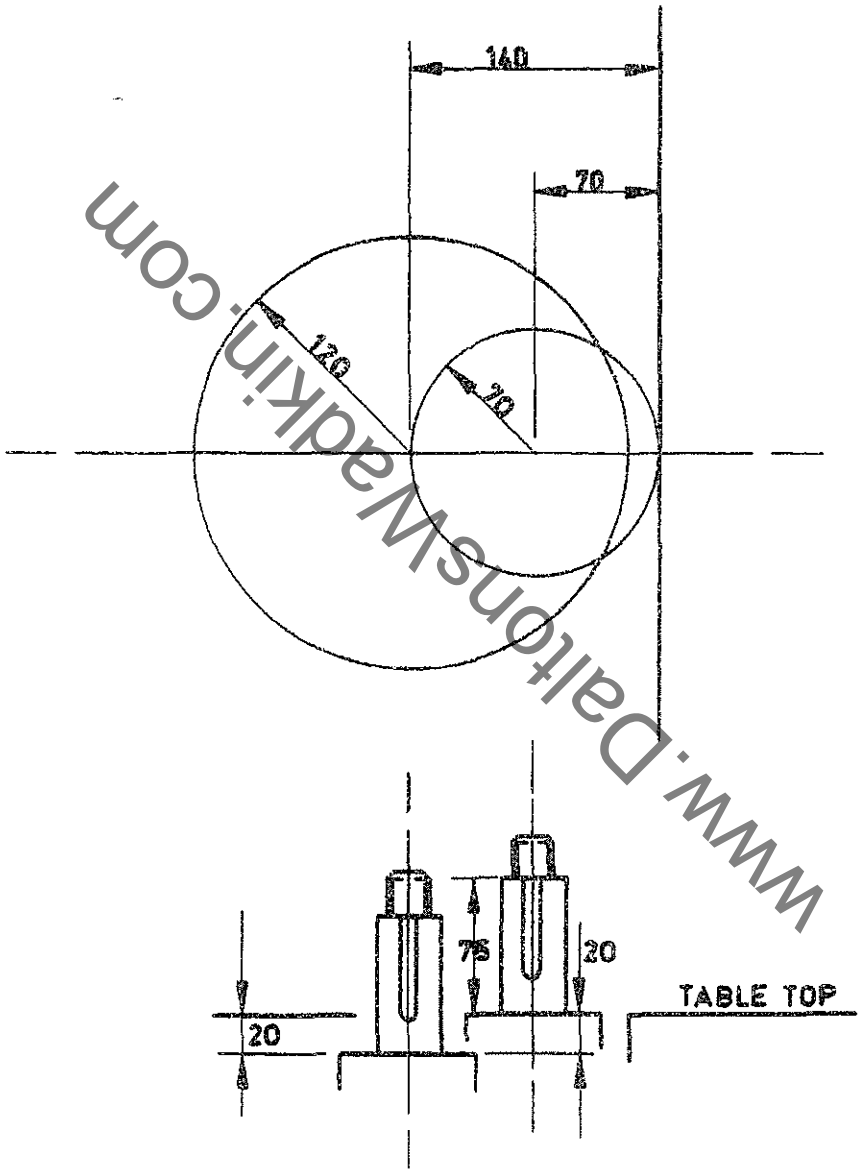
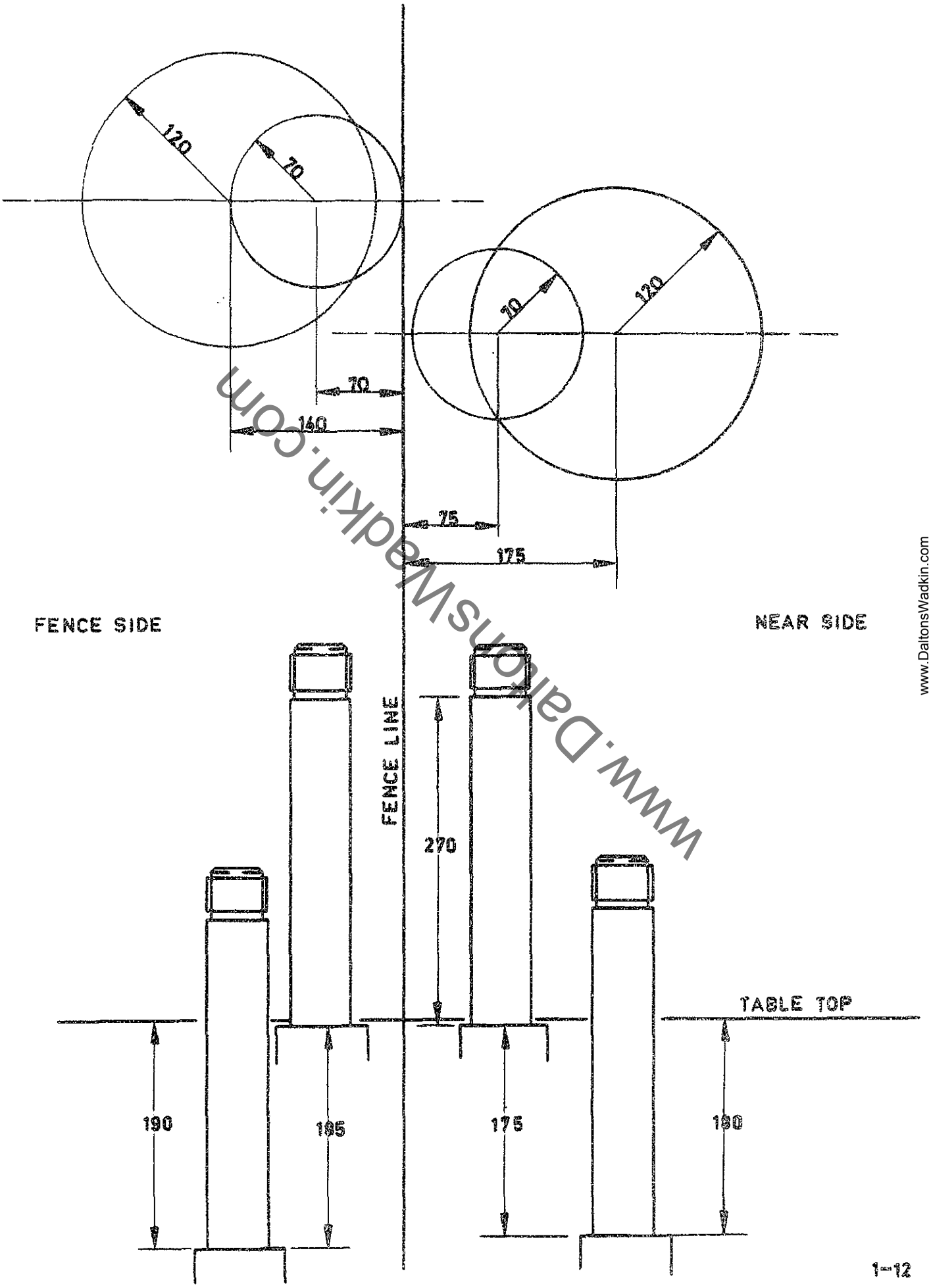


FIG.8 SHORT VERTICAL AUX. SPINDLE

FIG.9 MAIN VERTICAL PROFILE SPINDLES



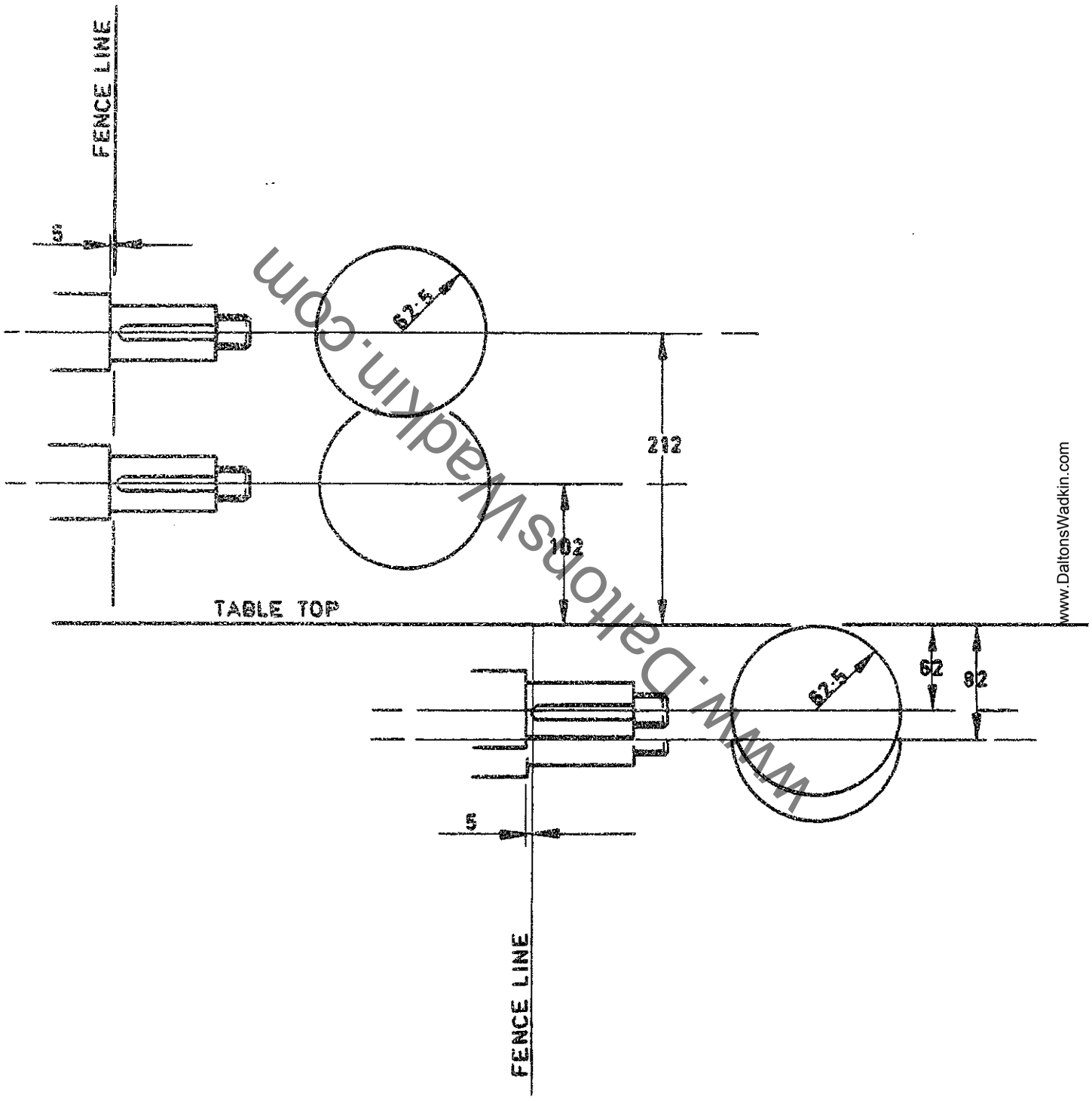


FIG.10 TOP AND BOTTOM PLANING UNIT

SECTION 2

I N S T A L L A T I O N D A T A

LOCATION AND FOUNDATIONS

To obtain the best results from the 'WADKIN' Wood-working machine, it is important that the floor on which the machine is to stand has been prepared and dry. After levelling the machine up as mentioned below, place the steel plates supplied with the machine under the adjustable levelling screws on both the profile and tenon units.

SUGGESTED LEVELLING AIDS:-

Straight edge 2 metre long

Feelers (thickness gauge 5) 0.50, 0.10, 0.15 and 0.2mm

Engineers' spirit level

Rule 1 metre long, 0.2mm graduations.

LEVELLING UP

i Place the spirit level on the tenon guide bar

ii Adjust the tenon level by means of the adjustment screws in the feet of tenon beam and the tenon body. Deviation should not be more than 0.1mm in 1.0m

iii Having checked the tenon beam, the tenon table should be checked for alignment in both directions.

iv Attach the transfer frame which includes the dis-appearing dogs, to the end of the tenoning beam.

v The flanges on the transfer frame can now be levelled to the tenon table by means of the adjustment screws in the flanges.

vi Placing the 2.0m straight edge up to the disappearing dogs, gradually "inch in" the profile unit until the fences and the dogs are in line.

vii With the same straight edge laid across the tenon table and the transfer frame, level up the profile side. Deviation should not be more than 0.1mm in 1.0m

THE FOUNDATIONS

The size of the foundations depends upon the specific machine model, format of the heads and disposition of the exhaust outlets.

If the floor consists of 100m - 150mm (4 to 6 inches) solid concrete, no special foundation is necessary. M16 'HILTI' type holding down bolts (not supplied with the machine) can be used to secure the machine to the floor.

NOTE: THE MACHINE MUST BE BOLTED DOWN BEFORE USE.

See foundation plan for details of floor area required.

SUPPLIES AND SERVICES

Electrical supply

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

The machine is delivered with it's 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 disconnect (isolator) switch at the electrical control cubicle or panel.

POINTS TO NOTE WHEN CONNECTING THE POWER SUPPLY

- Check the voltage, phase and frequency correspond with those on the machine nameplate details.
- Check the main fuses are the correct capacity in accordance with those on the machine nameplate details.
- Connect the incoming supply leads to the appropriate terminals.
- Check all connections are sound and that the equipment is earthed.
- Check the spindle rotation is correct. When looking from the front of the machine the feed rolls should rotate in a clockwise direction. To reverse the rotation on any drive, reverse any two of the live lead connections at the incoming supply.

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

PNEUMATIC EQUIPMENT

The machine is equipped with pneumatics, the main inlet connection is shown on the pneumatic circuit diagram and foundation plan. To make the system operative, connect up the air inlet to a suitable air supply, which the customer is responsible for.

The size of the air inlet connection is 1/4 inch.BSP female.

The size of the air lines on the machine are 6 mm O.D. x 4 mm I.D. and 8 mm O.D x 6 mm I.D.

Pressure required is 6 bar (approx 80 p.s.i.) see OPERATING INSTRUCTIONS for individual equipment pressure settings.

The air consumption is approximately 60 cu.ft/hr.

EXHAUST (DUST EXTRACTION) CONNECTIONS

On the window machining centre the exhaust hoods are fitted with dust connections and flexible pipes which feed into the main manifold. The customer is then required to supply the appropriate ducting to connect up to it.

The size of the connections are given on the foundation and also listed (Section 2 page 5).

The flow of the air to the exhaust hoods should be approx. 25 to 30 metres per second.

The total volume of the air required for the dust extraction is directly related to the total number of spindles and Aux. heads.

VOLUME OF AIR REQUIRED :

	Connection size	
Hogging saw	80 mm dia.	7.5 - 9.0 cu.m/min. (265 - 318 cu.ft/min).
Cut-off saw	100 mm dia.	11.7 - 14.1 cu.m/min. (413 - 498 cu.ft/min).
Tenon spindle	150 mm dia.	26.5 - 31.8 cu.m/min. (936 - 1123 cu.ft/min).
Stack tooling	765 x 160 sq.	183.6 - 220.3 cu.m/min. (6483 - 7779 cu.ft/min).
	140 x 90 sq.	18.9 - 22.6 cu.m/min. (667 - 798 cu.ft/min).
Short vertical profile spindle	100 mm dia.	11.7 - 14.1 cu.m/min. (413 - 498 cu.ft/min)
Vertical profile spindle	150 mm dia.	26.5 - 31.8 cu.m/min. (936 - 1123 cu.ft/min)
	80 mm dia	7.5 - 9.0 cu.m/min. (265 - 318 cu.ft/min).
Aux. top head	80 mm dia.	7.5 - 9.0 cu.m/min. (265 - 318 cu.ft/min)
Aux. bottom head	80 mm dia.	7.5 - 9.0 cu.m/min. (265 - 318 cu.ft/min)
Outside vertical profile spindle	150 mm dia.	26.5 - 31.8 cu.m/min. (936 - 1123 cu.ft/min)
	80 mm dia.	7.5 - 9.0 cu.m/min. (265 - 318 cu.ft/min)
Top horizontal planing head	127 mm dia.	19.0 - 22.0 cu.m/min. (671 - 777 cu.ft/min)
Bottom horizontal planing head	120 mm sq.	21.6 - 25.9 cu.m/min. (763 - 915 cu.ft/min)

SECTION 3

O P E R A T I N G I N S T R U C T I O N S

GENERAL INFORMATION

SAFETY

The safe operation of the woodworking machine requires constant alertness and close attention to work in hand.

READ THIS INSTRUCTION MANUAL CAREFULLY BEFORE ATTEMPTING TO OPERATE THE MACHINE

Blunt cutters often contribute to accidents. An efficient machinist knows when sharpening is necessary, but if there is reluctance to spend time on grinding and resetting, the cutters may run beyond their efficient limits and instead of cutting efficiently and smoothly, they will tend to chop and snatch at the workpiece. This not only increases the risk of accidents but also lowers the quality of the work.

Window lines are normally fitted with constant diameter throw-away tip tooling. The tips should be examined at frequent intervals and changed before becoming too blunt.

It is recommended that personnel involved with the machine are acquainted with the Woodworking Machines Regulations of 1974 and also Booklet No.41 'Safety in the use of Woodworking Machines', used by the Department of Employment and available from Her Majesty's Stationery Office. Also B.S.I. code of practice 'Safeguarding Woodworking Machinery' Part I BS 6854.

SAFETY DEVICES

The safety covers and dust hoods must be closed during the time the machine is running.

The safety fence that surrounds the tenon spindles and hogging or cut-off saw is fitted with a gate which is electrically interlocked. During normal working the gate should be closed. If at any time it is opened then the machine will be isolated.

Tenon table clamps can only be released when the table is in either the start position or the transfer position.(Fig.1).

If at any time the air or power is lost to the machine, all pneumatically 'live' heads will retract from their cutting positions, as there is a built-in reservoir of air.

Attached to the feedworks unit is a 'trip-wire' which in an emergency can be pulled and will completely shut down the windowline.

Under the tenon table, mounted on the pneumatic control plate is a pressure switch. If the incoming air falls below 70 p.s.i. (factory set) the tenon table will not start its cycle. This feature ensures that the components are held firmly under the clamps with no chance of possible movement under a 'heavy cut'.

On the main pneumatic control panel there is another pressure switch. This is set to 50 p.s.i. (factory set). This ensures that if the air falls below the set level, the complete machine will shutdown, and the indicator light on the control panel will be illuminated.

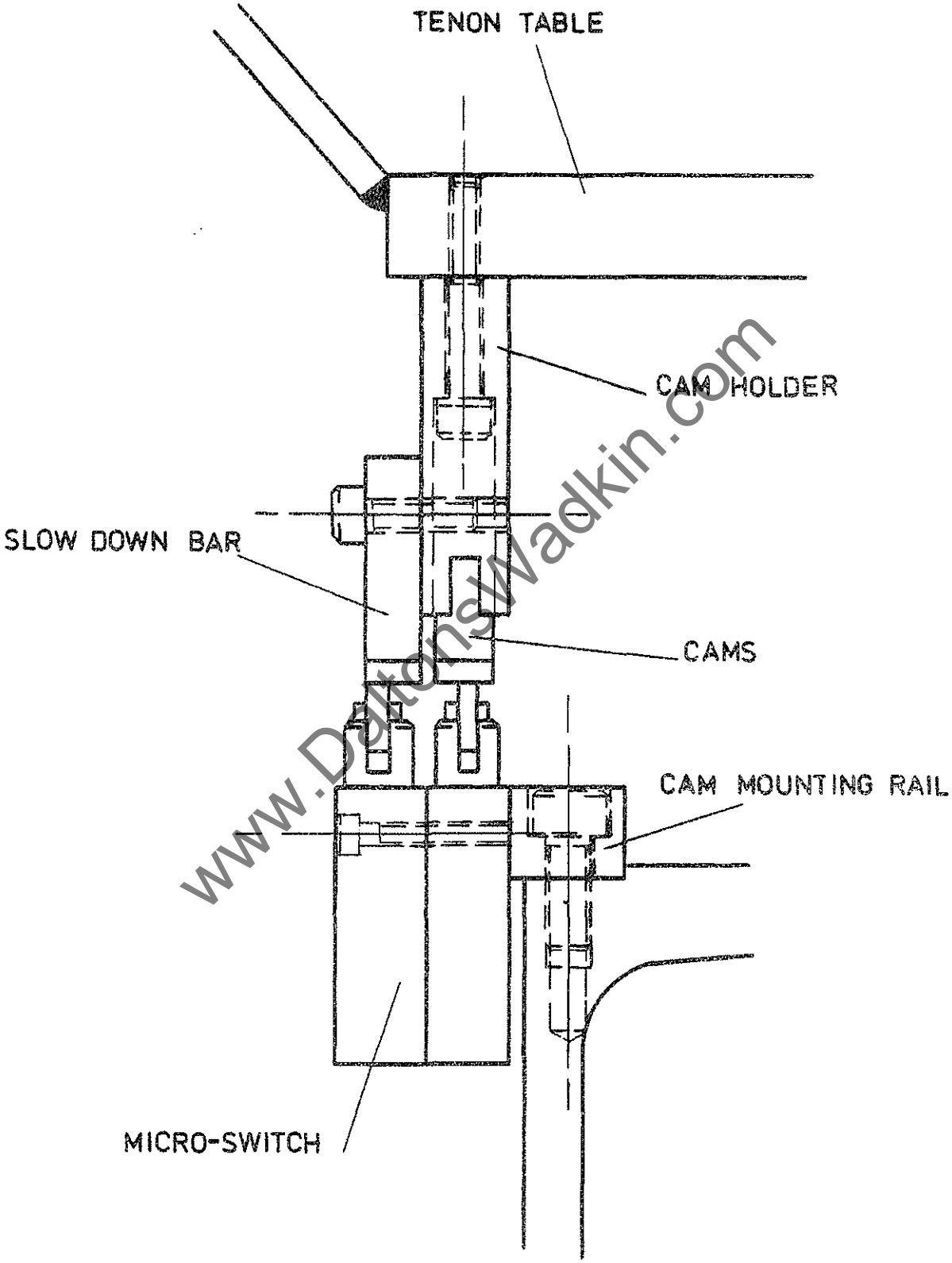


FIG.1 TENON TABLE CAMS

WARNINGS

Do not operate without guards and covers in position. Slides, guards and other safety devices are not to be removed while the machine is in operation. They are there for **YOUR SAFETY.**

Be sure that the machine is earthed (grounded).

Remove or fasten loose articles of clothing such as neckties etc., confine long hair.

Remove jewellery such as finger rings, watches, bracelets etc.

Use a safety face shield, goggles or glasses to protect eyes. Use the personal safety equipment as requested.

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

Keep the floor area around the machine clean and free from wood scraps, sawdust, oil or grease, to minimise the danger of slipping.

Keep clear of the machine until rotation has ceased.

This machine, under working conditions, may produce a noise level in excess of 90 dB(A) and for personal safety, operator must wear ear protectors.

Also see 'Health and Safety'.

SETTING UP THE MACHINE

MACHINE CONTROLS (Fig. 2 or 3)

Before starting the machine, operators should familiarrise themselves with the various controls and their usage.

The pushbuttons are positioned on the electrical control panel which can be suspended or supported from an arm above the hogging or cut-off saw.

The panels shown are typical examples and contain the following features:

START-STOP Pushbutton.
with indicator lights for each spindle.

SPINDLE RETRACT Switch.
Set below start-stop pushbuttons. Is used when manually setting the spindles.

NORMAL - SASH Switch.
When fitted it enables the spindle to 'contro-rotate' for sash profiling.

CLAMP ON (Manual) Pushbutton.
For component clamps on. Can only be used in manual cycle.

CLAMP OFF (Manual) Pushbutton.
For component clamps off. Can only be used in manual cycle.

TENON TABLE 'INCH' FORWARD Pushbutton.
'Inches' tenon table forward. Can only be used in manual cycle.

TENON TABLE 'INCH' REVERSE Pushbutton.
'Inches' tenon table in reverse. Can only be used in manual cycle.

OPERATING MODE 3 way Switch.

Mode 1 - Tenon one end and profile.
Mode 2 - Tenon only.
Mode 3 - Tenon Two ends and profile.

BRAKES OFF Pushbutton
With indicator light, releases the brake in manual only.

BRAKES ON Pushbutton
With indicator light, engages the brake in manual only.

MANUAL OPERATION Pushbutton.
With indicator light for manual operations.

AUTOMATIC OPERATION Pushbutton
With indicator light, used to select automatic mode. When used the brakes are always engaged.

POWER ON Pushbutton
With indicator light.

POWER OFF Pushbutton

PUSH BUTTON KEY PAD
To imput data to the processor (component names, sizes etc).

L.E.D. SCREEN
Displays the component names and sizes.

CYCLE START Button
Starts cycle mode (i.e. tenon, tenon & profile) when in auto operation.

CYCLE STOP Button
Stop cycle mode.

TENON TABLE FEED CONTROL Rotary dial.
Used to either increase or decrease tenon table speed on forward traverse only.

SINGLE AND DOUBLE PIECE SELECTION. Rotary dial.
To select either 1 or 2 piece operation.

1ST - 2ND PASS. 2 Position rotary switch.
To select either 1st or 2nd pass information from the processor.

COMPONENT SELECTION SWITCH. Rotary dial.
Selects style of component.(i.e. cill, head etc..)

PRODUCT SELECTION Rotary dial.
Selects product type.

INSTIGATE MACHINE SET-UP. Pushbutton.
Will position controlled axes and 'ready' will then appear on display panel (auto mode only).

MASTER STOP Pushbutton.
With indicator light, stops the machine completely. Can be used as emergency stop.

LOW AIR PRESSURE Light
Is illuminated when the air pressure to machine falls below set level. (See SAFETY DEVICES).

OVERLOAD TRIP Light.
It is illuminated when overload condition arises.

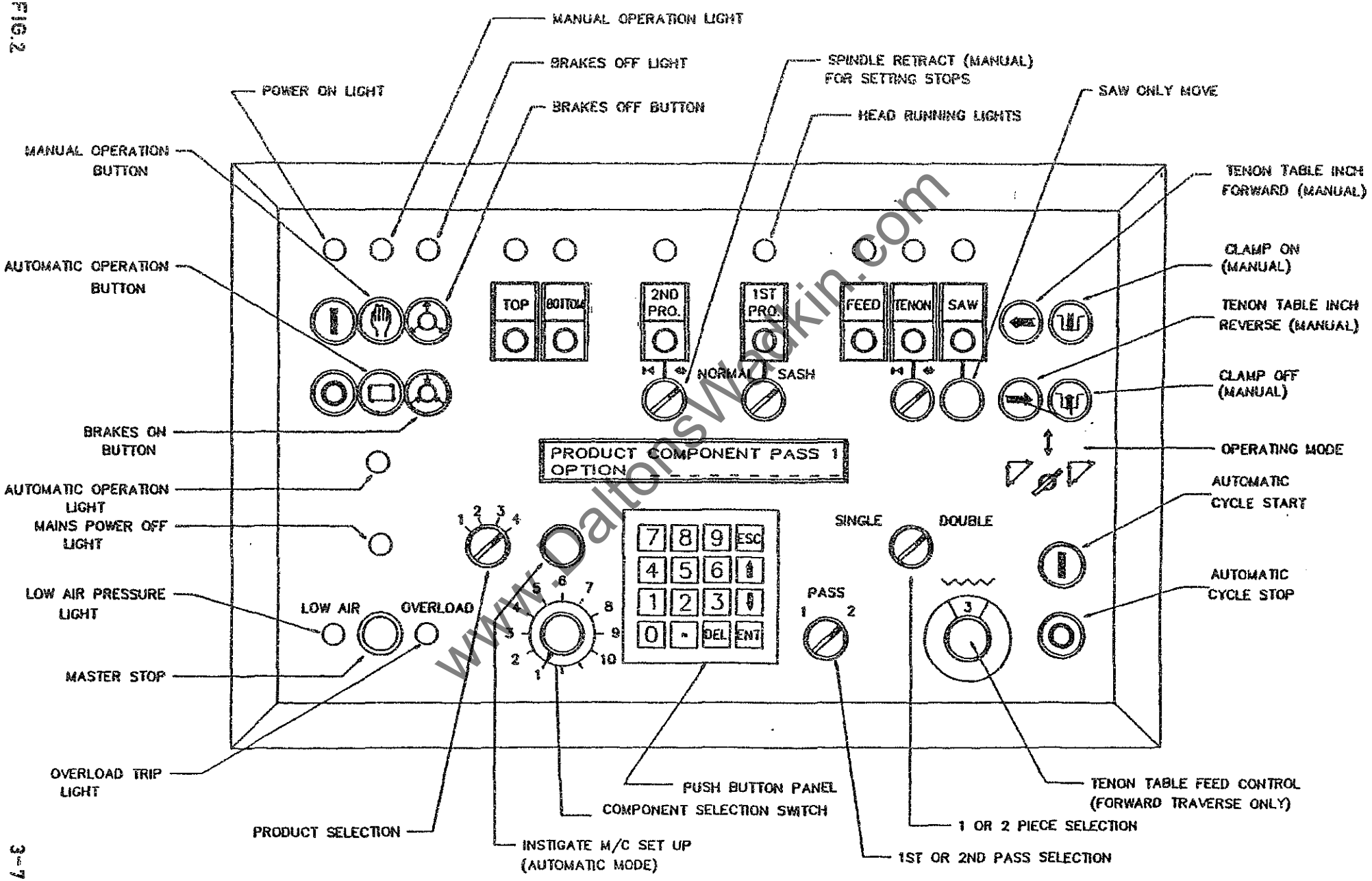
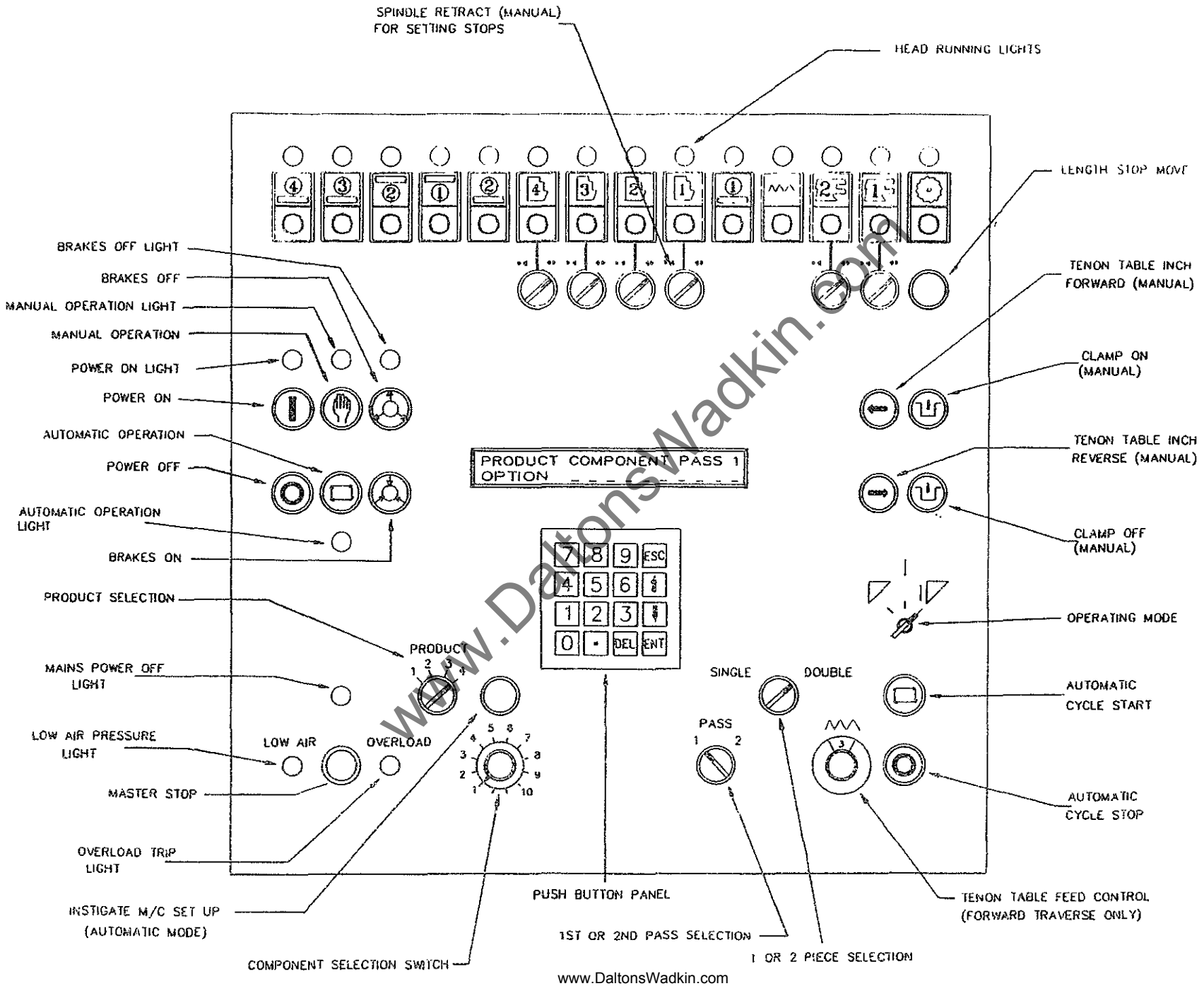


FIG 3



AUXILIARY CONTROLS (Fig.4)

These auxiliary controls are situated on the front of the profile body just below the lip of the profile table. There are normally 2 boxes, the right hand box (looking from the front of the body) has 2 central push buttons to raise and lower the feedworks beam, the 2 outer ones are indicator lights which are illuminated when the beam reaches either max. or min. limits of travel.

The second of the two boxes carries the head retract switches used when setting up the Auxiliary Horizontal Heads. If supplied there would also be a 'pop-out' fence push button.

As mentioned above the Aux. Controls can be in either 1 box or 2. It all depends on the number of spindles specified.

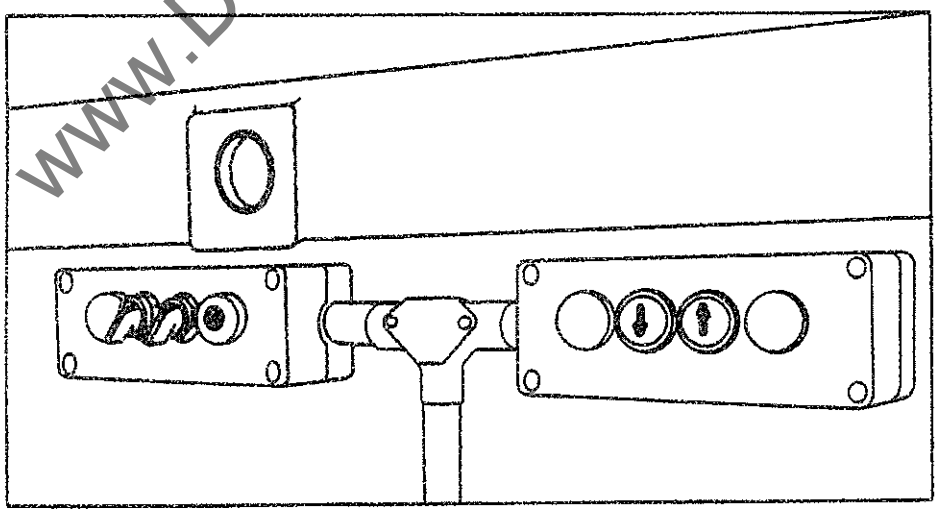


FIG.4

ROTATING BACKING PIECE AND CLAMP BRACKET

The rotating action of the backing piece is controlled by means of a pneumatic cylinder, the speed of which can be varied by use of flow control valves at each end.

This is connected at the rod end to a clutch mechanism that positions the backing piece on the forward stoke.

When in one of the six turret positions a spring loaded 8mm dia. steel ball is located in clutch detent plate and the proximity switch target is opposite appropriate proximity switch. To ensure that indexing remains in sequence it is important that cylinder setting is as shown Fig.5. In order to assist accurate positioning of the turret a friction damper consisting of a spring loaded brass pad is applied.

CHANGING THE BACKING PIECE

The clamp bracket and washer are recessed into the backing piece and the whole unit secured to the rotating shaft by means of a socket head cap screw.

1) Remove the screw and withdraw the backing piece.
Detach the clamp bracket and washer.

2) Press the clamp bracket and washer into the new backing piece (Fig.6) and re-attach to the shaft using cap screw.

N.B.
If the backing piece has pre-drilled 10mm holes, it is important that turret is located at one of six positions and the square headed dowel should be inserted.

3) Check that new backing piece is in line with table fence plate.

Further information regarding the backing piece can be be found in SETTING UP THE PROCESSOR and ILLUSTRATED PARTS LIST.

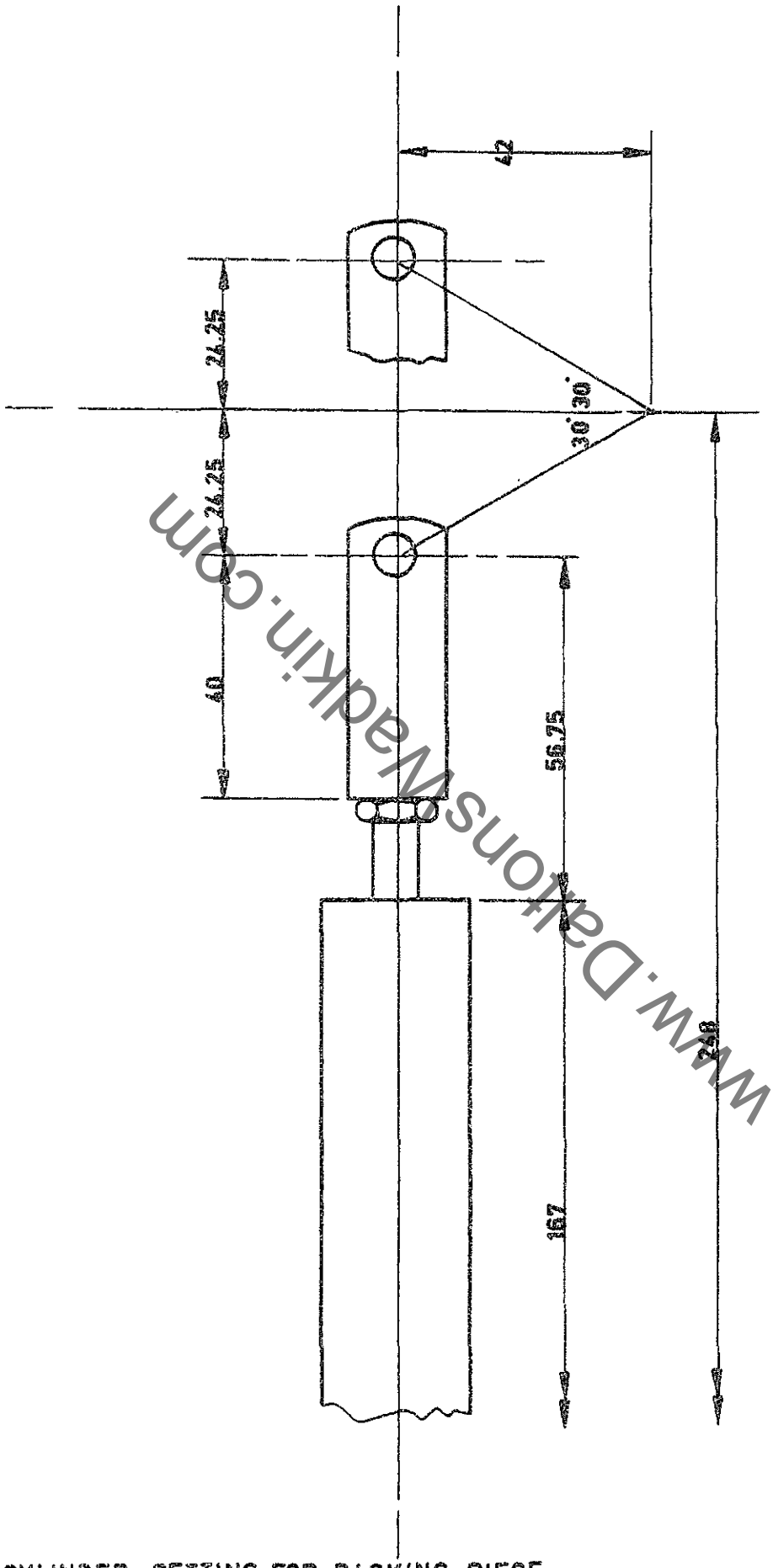


FIG.5 CYLINDER SETTING FOR BACKING PIECE

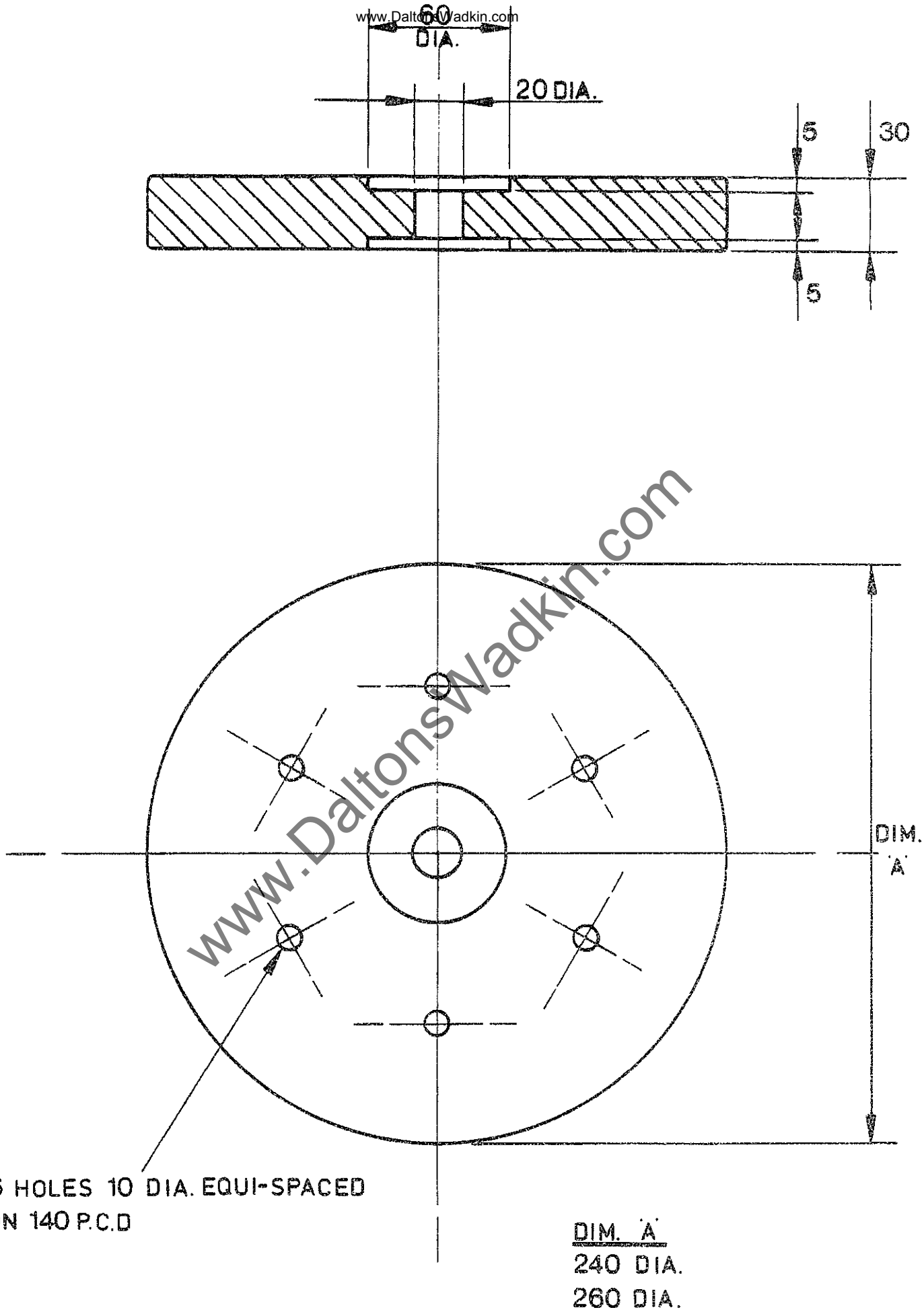


FIG.6 BACKING PIECE – MATL. M.D.F

3-12

TENONING TABLE CLAMPS Fig.7.

Timber is held during the tenoning operation by one or two clamps which will only operate when the table is at either start position or transfer point, i.e. timber into profiling section of machine. Full pressure is only applied when the central 'pip' is depressed.

In later models there may also be fitted a clamp that comes up through the table which holds the side of the components. This clamp only operates when in automatic cycle and is timed to be applied before table reaches tenon spindle. Under the table mounted on a control panel is a pressure switch which is pre-set by Wadkin before leaving the factory. Should the air pressure feeding the clamps fall below set level the pressure switch will prevent the table moving.

Also mounted on the same control panel is a pressure regulator which controls air pressure to the clamp cylinders and this is normally set at 80 p.s.i.

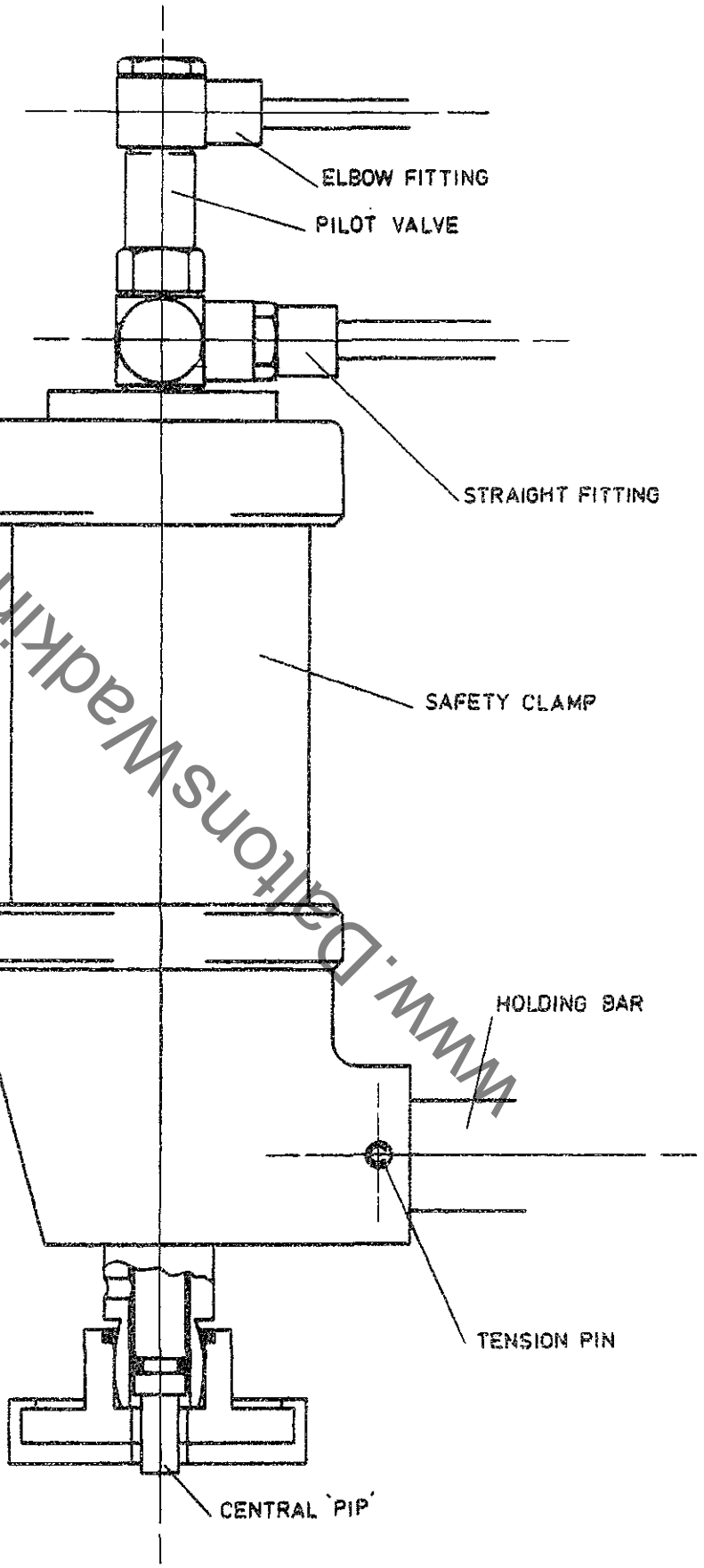


FIG. 7 TENON CLAMP

TENON TABLE TRAVERSE - (WMC 1, WMC 6)

The table is controlled via a ballscrew driven by a variable speed motor.

Mounted on the underside of the table is a cam bar which contacts micro switches at either end of the table traverse, for slow down.

Alongside the cam bar are two adjustable cams used for table stop position by contact with micro-switches.
A further micro-switch is mounted just past the tenon spindle which operates when the table is to return (see MODE OPERATION).

Forward movement of the table can be varied by use of tenon table feed control (Fig. 2 & 3) but return speed is fixed at 20 m/min.

Set adjustable cams to align tenon table fence with profile fence at transfer position and with length stop bar at start position.(Fig.1)

Slow down cam bar and the table stop cam must be in contact with the micro switches before clamps will operate and table allowed to move.

TENON TABLE TRAVERSE - (WMC 2)

The table is controlled via a chain, driven by a variable speed motor.

Mounted underneath the table are a series of proximity switches that are aligned to three lines of cam bars which are attached to the beam side.

Top line of cam bars control the speed of the table through the saw and tenon positions, this speed being varied by use of tenon table feed control (Fig. 2 & 3).

Selected feed speed is also brought into operation at the end of forward and backward traverse, acting as slow down.

Having slowed down at forward traverse the second line cam bar is sighted by the proximity switch which then ramps down the table to 'creep' speed.

When the tenon table fence is lined up with the profile side fence, the third line cam bar should be sighted by a further proximity switch and the table then stops.

Table is always reversed at full speed at 20 m/min. then slow down, 'creep' and stop repeated at the operator position.

Proximity switches are normally set 1 mm. from the cam bars. Set adjustable cam bars to align tenon table fence with profile fence at transfer position and with the length stop bar at start position.

'Creep' and end limit cam bars must be sighted by the proximity switches before clamps will operate and the table allowed to move.

INFEED END STOP Fig.8.

This consists of a block with a spring loaded plunger set into the top edge. The block is attached to the saw mounting and moves back and forth with it.

The plunger acts as an end stop for trimming the end of timber and if a Hogging saw is fitted it should be set to individual requirements up to a maximum of 25mm.

When timber is turned round and located against length stop, the excess length passes over the plunger which depresses when clamps are applied.

Components should normally be cut to length plus 10mm before cutting on window lines.

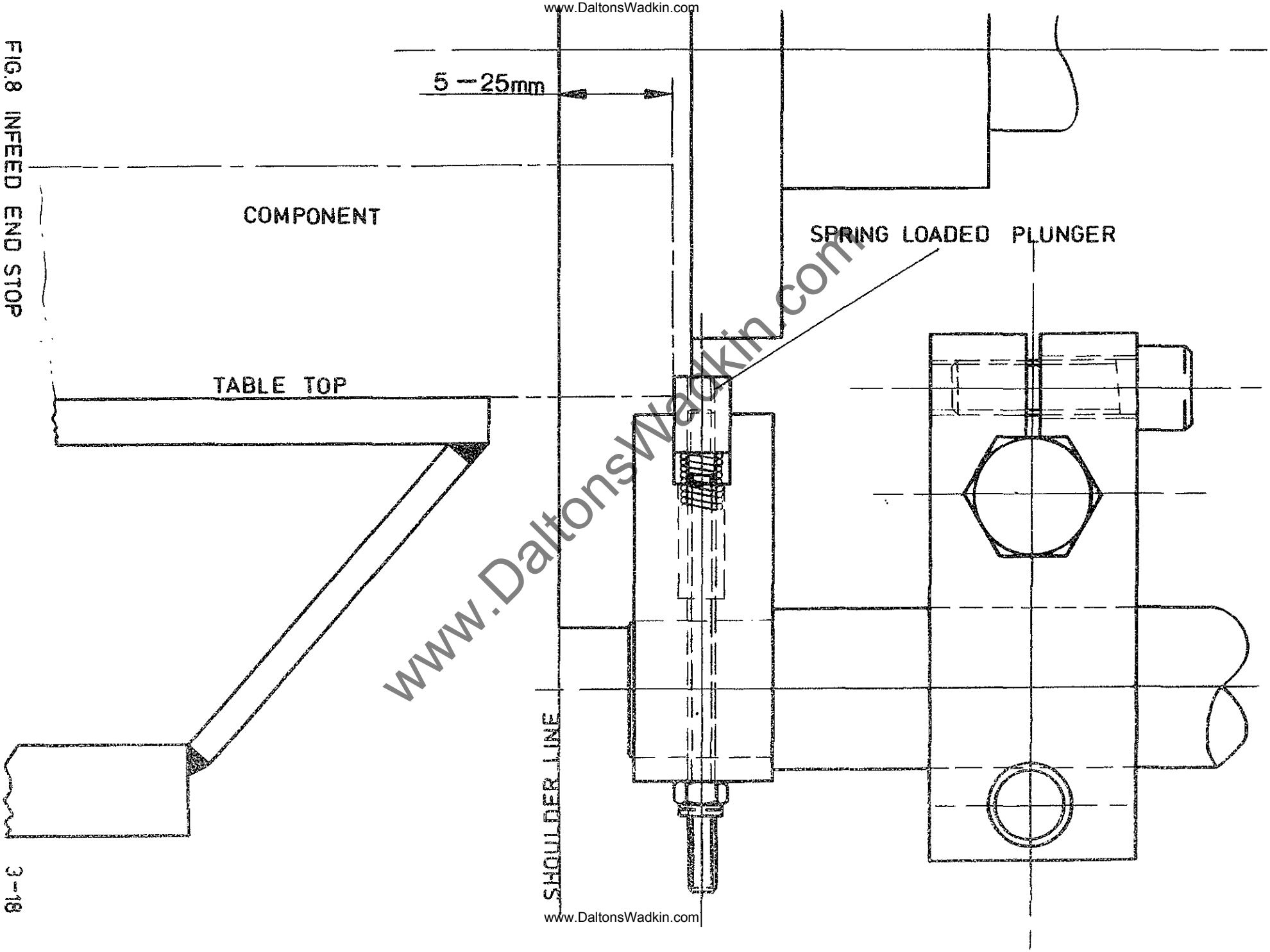


FIG.8 INFEED END STOP

HOGGING SAW

The hogging saw unit comprises of a 250mm dia. blade and cutters allowing up to a maximum of 25mm cut off.

From top of tenon table to centre line of spindle is a fixed dimension and maximum component depth is 150mm. Saw unit is normally fitted to an arbor and the assembled unit mounted on a motor spindle, which moves horizontally and is controlled by a gearbox/motor encoder drive mounted on the end of the slide.

On the underside of the slide are three micro switches and three cams, located in an adjustable slide.
One micro switch is the end limit for maximum forward movement, one is end limit for maximum backward movement and the other switch is for Datum which is normally the zero start position.

In some instances the above conditions may vary slightly, three micro switches attached to the hogging saw support and only two cams which are located on the adjustable slide. One micro switch takes care of both end limits, i.e. maximum forward movement, maximum rearward movement and the other cam is the datum.

The cams are set up by Wadkin but should the need arise, they are easily adjustable (Figs.9 & 10).
When the hogging unit has been mounted, the Datum position of the outer saw edge to tenon table edge should be 150mm.

Positioning drive screw is carried through the encoder mounting bracket and is square ended to allow manual winding of the head. A Siko clock is fitted giving a rapid visual check of saw to table position.

In order to set the clock initially it is best to take an actual cut and measure sawn end to table.

SET UP PROCEDURE FOR AXIS

1) Manually move the head back to its Datum position i.e. 150 mm Siko clock reading.

2) When this distance has been reached, rotate the encoder body until the market pulse is found and lock the encoder up at this point.

3) Now move the head back a further distance equivalent to half of the pitch of the screw, i.e.2mm - Siko Clock should read 152mm.

4) Move the Datum cam into the datum switch until it closes the contact, then move the cam out slowly until the contact opens. Lock the cam in this position.

Once Datum cam is finally set, position the backward traverse end limit cam slightly behind it.

Set the forward traverse end limit cam to required setting.

End limit cams only operate the switches if fault occurs.

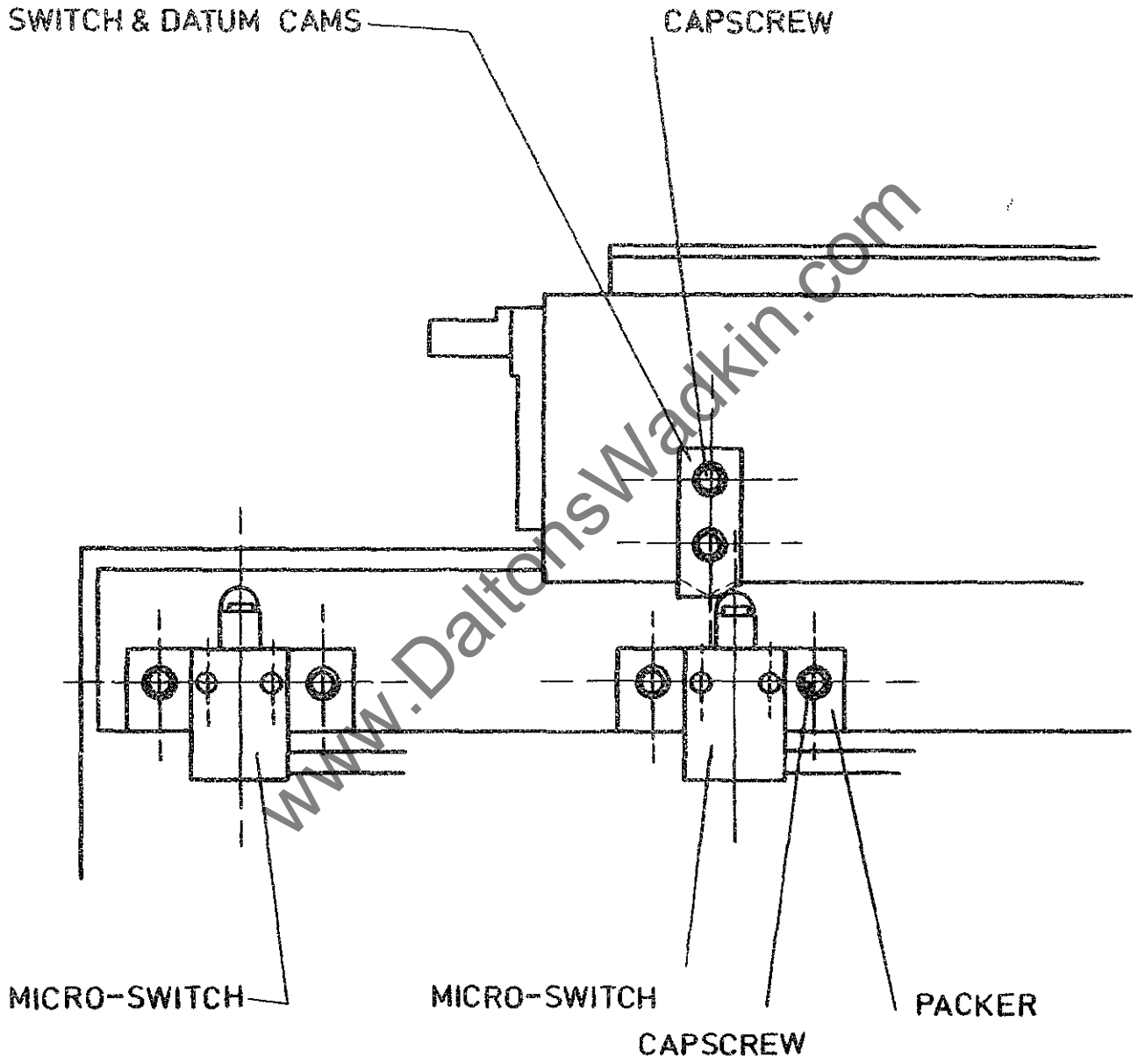


FIG.9 CAMS FOR HOGGING SAW

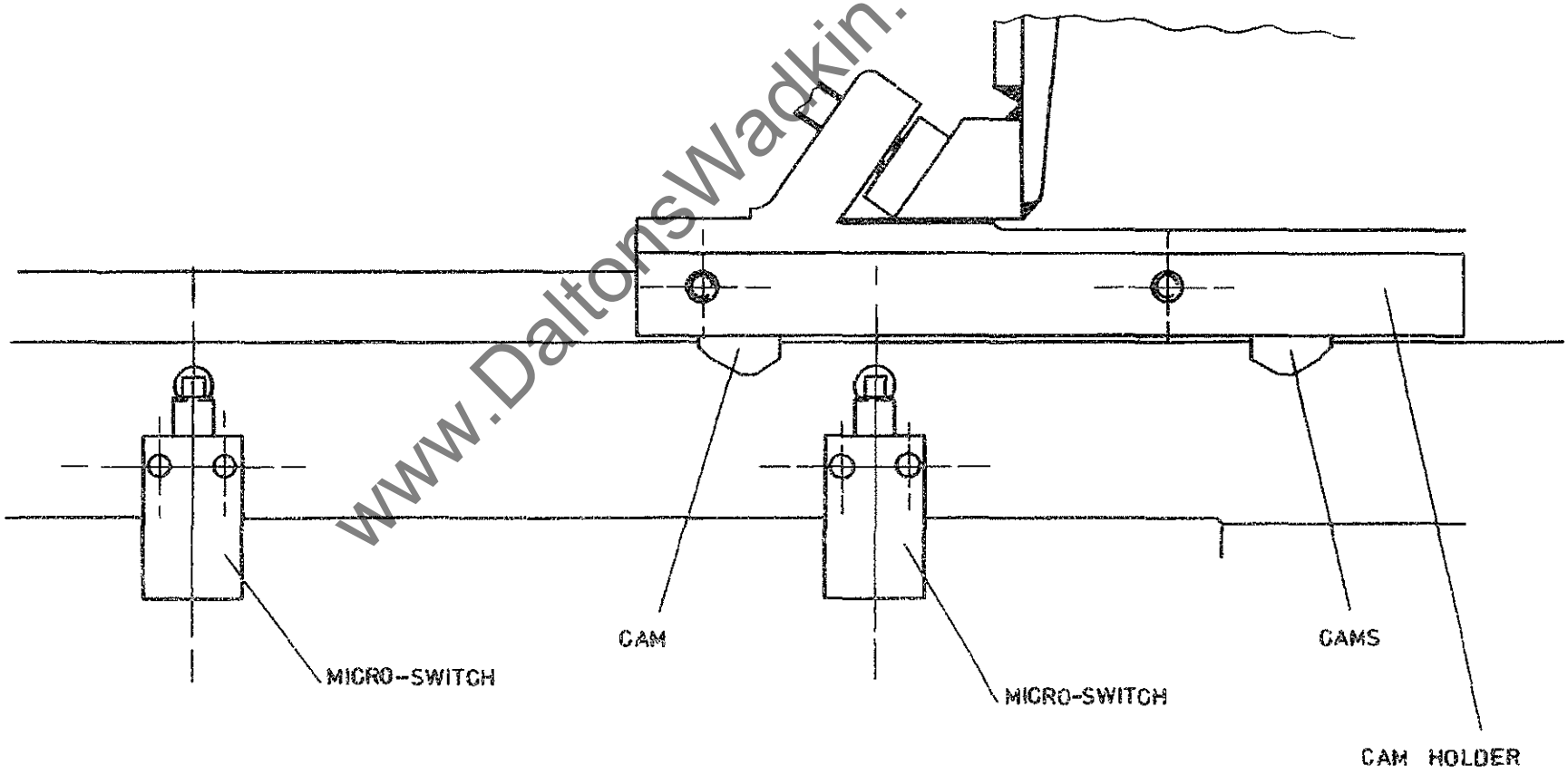


FIG.10 CAMS FOR HOGGING SAW

STOP BAR/TURNOVER STOP

The stop bar is permanently fixed so that the turnover stop can be adjusted if required whilst the tenon table is progressing through the cycle.

Actual measuring scale slides in the stop bar and is linked directly to the saw movement, thus the component length is always relative to sawn end.

To set, cut a convenient length of timber located against turnover stop. Measure length of sawn timber and adjust optic to measured length.

AUTOMATED STOP BAR

Stop is driven along stop bar and is relative to saw move. Because of this, each time a length is inserted a calculation is automatically made by the computor, deducting saw move from length move. This setting is carried out by Wadkin.

TENON SPINDLE (270 mm)

Horizontal movement is by pneumatic cylinders and positioning either to a fixed stop or 6 station turret stop. Setting of this is covered in PROGRAMMING. Vertical movement is by a gearbox/motor encoder drive and datum setting is — shoulder line of spindle positioned 190mm below tenon table.

A spline shaft, worm and wheel assembly present a square ended screw through the side of the beam to allow manual winding of the head. A Siko clock is fitted giving rapid visual check of shoulder line position from Datum.

Behind removable cover on beam side, access is gained to three micro switches and two adjustable cams.

SET UP PROCEDURE FOR AXIS

Before starting it is easier to set Siko clock to correct reading.

Raise spindle to convenient height and measure distance of tenon table to spindle shoulder e.g. 40mm.

Datum position required is known, i.e. 190mm from table and Siko clock should show move from Datum.

Measurement is 40 mm - Datum 190 so move has to be 190 - 40 = 150 - Set Siko clock at 150.

Having set the clock continue as follows:-

1) Manually move the head down to its Datum position, i.e. 000.0 Siko clock reading.

2) When this distance has been reached, rotate the encoder body until the marker pulse is found and lock the encoder up at this point.

3) Now move the head down a further distance equivalent to half revolution of the encoder i.e. 0.5 mm. Siko clock should read 999.5.

4) Move the datum cam into the datum switch until it closes the contact, then move the cam out slowly until the contact opens. Lock the cam in this position.

Once the datum cam is finally set, position downward traverse end limit cam slightly lower.

As the end limit cam is double bevelled the head should then be powered up to establish where the top limit activates. The minimum setting of top switch is 185 mm move from datum. Should head trip out before this figure, it is necessary to cut or file cam top bevel. For further information see ILLUSTRATED PARTS LIST.

TENON SPINDLE (600 mm)

70 mm. Horizontal movement is controlled by a gearbox/motor encoder drive mounted on the end of the slide.

On top of the slide are three micro switches and three cams located in an adjustable slide.

One micro switch is end limit for maximum forward movement, one is end limit for maximum backward movement and the other switch is for Datum which is normally 230 mm. start position.
The cams are set up by Wadkin but should the need arise, they are easily adjustable (Similar to HOGGING SAW Fig 10).

Positioning drive screw is carried through the encoder mounting bracket and is square ended to allow manual winding of the head. A Siko clock is fitted giving rapid visual check of spindle C/L to tenon table edge position.

SET UP PROCEDURE FOR HORIZONTAL AXIS

Before starting it is easier if the Siko Clock is set to correct reading.
Traverse tenon table forward until it is alongside tenon spindle.
Wind tenon spindle into a convenient position and measure distance of table edge to spindle e.g. 150 mm.
Add 25 mm to get spindle centre line = 175 mm.
Set Siko Clock to read 175.0.
Having set the clock, continue as follows:

1. Manually move the spindle back to its Datum position i.e. 230.0 Siko Clock reading.

2. When this distance has been reached, rotate the encoder body until the market pulse is found and lock the encoder up at this point.

3. Now move the spindle back a further distance equivalent to half revolution of the encoder i.e. 2 mm. - Siko Clock should read 232.0.

4. Move the datum cam into the datum switch until it closes the contact, then move the cam out slowly until the contact opens.
   Lock the cam in this position.

Once Datum cam is finally set, position the backward traverse end limit cam slightly behind it.
Set the forward traverse end limit cam to give trip condition relevant to diameter of tools being used.

e.g. Tool main diameter = 300 mm.
Working position (shoulder line) of main tool diameter is 20 mm. from tenon table edge.
Maximum forward traverse of tenon spindle is 230 (Datum) minus 150 (Tool radius) minus 20 (Shoulder line) - 60 mm.
Allow for 1 mm. overrun condition so end limit cam should operate at 230 - 61 = 169.0 Siko Clock reading.

Vertical movement is by a gearbox/motor encoder drive and datum setting is shoulder line of spindle positioned 520 mm. below tenon table.

Positioning drive screw is carried through the encoder mounting bracket and square ended to allow manual winding of the head. A Siko Clock is fitted giving rapid visual check of spindle shoulder position relative to tenon table.

At the side of the spindle slide unit are three cams and three micro switches for datum setting and end stroke limits.

SET UP PROCEDURE FOR VERTICAL AXIS

Before starting it is easier if the Siko clock is set to correct reading.
Raise spindle to a convenient position and measure distance of tenon table to spindle shoulder e.g. 50 mm.
Set Siko Clock to read 50.0.

Having set the clock continue as follows:-

1) Manually move the spindle down to its datum position i.e. 520.0 Siko Clock reading.

2) When this distance has been reached, rotate the encoder body until the market pulse is found and lock the encoder up at this point.

3) Now move the spindle down a further distance equivalent to half revolution of the encoder, i.e. 2 mm. Siko Clock should read 522.0.

4) Move the datum cam into the datum switch until it closes the contact, then move the cam out slowly until the contact opens.
Lock the cam in this position.

Once datum cam is finally set, position the downward traverse end limit cam slightly lower.
Spindle should then be powered upward a distance of 515 mm. then manually wound up until the Siko Clock reads 004.0. Set top limit switch cam at this point.

SET UP PROCEDURES FOR HYDRO-GRIP SLEEVE

The 600 mm. long spindle is fitted with a grease pressurised steady (Hydro-grip) at the top end.
The steady itself is mounted to a removable top plate which is dowelled in the correct alignment position.

This unit **MUST** be fitted before the spindle is run.
After mounting on the spindle, pressurise to 200 - 250 bar. This bearing is now locked and centred.

The hydro-grip sleeve can be released by means of the pressure release valve.

The grease gun and grease needed to 'pump-up' the hydro-grip is supplied by Wadkin in the tool kit.

VERTICAL PROFILE SPINDLE (270mm)

Horizontal movement is by pneumatic cylinders and positioning either to a fixed stop or 6 station turret stop. This setting is covered in PROGRAMMING.

Vertical movement is by a gearbox/motor encoder drive and datum setting is – shoulder line of spindle positioned 190mm below table.

A spline shaft, worm and wheel assembly present a square ended screw through the side of the frame to allow manual winding of the head. A Siko clock is fitted giving rapid visual check of shoulder line position from datum.

Behind removable cover on frame side, access is gained to three micro switches and two adjustable cams.

SET UP PROCEDURE FOR AXIS

Before starting it is easier if the Siko clock is set to correct reading.

Raise spindle to convenient height and measure distance of table to spindle shoulder e.g. 40mm.

Datum position required is known i.e. 190 mm from table and Siko clock should show move from datum.

Measurement is 40 mm, Datum 190 so move has to be
190 - 40 = 150 - Set Siko clock at 150.

Having set the clock continue as follows:-

1) Manually move the head down to its Datum position i.e. 000.0 Siko clock reading.

2) When this distance has been reached, rotate the encoder body until the marker pulse is found and lock the encoder up at this point.

3) Now move the head down a further distance equivalent to half revolution of the encoder i.e. 0.5mm Siko clock should read 999.5.

4) Move the datum cam into the datum switch until it closes the contact, then move the cam out slowly until the contact opens.

Lock the cam in this position.

Once datum cam is finally set, position downward traverse end limit cam slightly lower.

As the end limit cam is double bevelled the head should then be traversed up to establish where top limit activates.

The minimum setting of top switch is 185 mm move from datum. Should head trip out before this figure is reached it is necessary to cut or file cam top bevel. For further information see ILLUSTRATED PART LIST.

OUTSIDE VERTICAL PROFILE SPINDLE (270mm)

Horizontal movement is by pneumatic cylinders and positioning to a 6 station turret stop. This setting is covered in PROGRAMMING.

Vertical movement is by a gearbox/motor encoder drive and datum setting is shoulder line of spindle positioned 180mm below table.

A spline shaft, worm and wheel assembly present a square ended screw through the side of the frame to allow manual winding of the head.

A Siko clock is fitted giving rapid visual check of shoulder line position from datum.

SET UP PROCEDURE FOR AXIS

Before starting, it is easier if the Siko clock is set to correct reading.

Raise spindle to convenient height and measure distance of table to spindle shoulder e.g. 40mm.

Datum position required is known, i.e. 180mm from table and Siko clock should show move from datum.

Measurement is 40mm, Datum 180mm so move has to be 180 - 40 = 140mm - Set Siko clock at 140 having set the clock continue as follows:-

1) Manually move the head down to its Datum position, i.e. 000.0 Siko clock reading.

2) When this distance has been reached, rotate the encoder body until the market pulse is found, and lock the encoder up at this point.

3) Now move the head a further distance equivalent to half a revolution of the encoder i.e. 0.5 mm - Siko clock should read 999.5.

4) Move the datum cam into the datum switch until it closes the contact, then move the cam out slowly until the contact opens.
Lock the cam in this position.

Once the datum cam is finally set, position downward traverse end limit cam slightly lower.

As the end limit cam is double bevelled the head should then be traversed up to establish where the top limit activates.

The minimum setting of top switch is 175mm move from datum. Should the head trip the switch before this figure is reached it is necessary to cut or file cam top bevel.

For further information see ILLUSTRATED PARTS LIST.

FEEDWORKS

A series of units each with its own three roller box linked together and driven by a variable speed drive motor. Each box is secured to its own unit by four hexagon headed screws and can be pivoted to run parallel to the fence or with slight 'toe in'.

Every roller position has an independent pneumatic cylinder and the whole pressure system has a regulator control fitted inside the main body.

Regulator is normally set between 40 and 50 p.s.i. Rollers are rubber faced on open sided machines but steel and rubber on WMC 'XOP' range.

There are two widths of rollers used, namely 12 mm and 24 mm which together with a choice of spacers, 5mm and 9 mm allow the system to be set up in the best configuration to suit individual customer requirements.

The first two rollers at infeed end have a separate circuit and regulator, so that they can be lifted during transfer of components from tenoning side - See MODE OPERATION. At certain roller positions there are micro-switches which signal sequences during program running and it is essential that these be set correctly (Fig.11).

SWITCH 1

Normally fitted to the first box, at the third roller position, this switch activates when the roller drops off trailing edge of of component.

This signals the first two rollers to lift and activates pusher to position the second piece of timber at fence line ready for feeding in. If single piece working then rollers and pusher are ready for arrival of tenon table.

On models with sash profiling option the micro switch has a dual function and when Sash is selected on control panel, lifting of the feed roller moves first profile spindle clear of the fence line and dropping of the feed roller moves first profile spindle back in after time delay.

Switch 2

Normally fitted at outfeed end, in a suitable roller position this switch monitors progress of the component in the profiling section and failure to activate will not allow the program to change - see FAULT.

When activated it also signals the release of a short air blast through table blowers located on fence.

SETTING FEEDWORKS.

Using the manual control button on the front of profile section (Fig 4) 'inch' the feed up to a suitable roller table height e.g. 500.

With square ended timber of large enough cross section to stand on end and 500 mm long, quickly check height of rollers to table.

Use hexagon socket grub screw below each roller arm (Fig 12) to align the complete set of rollers.

It is best to set rollers fitted with micro-switches slightly lower than the others to ensure contact is broken with minimal roller lift when component feeds through.

Ensure that there is sufficient adjustment left to lower individual rollers in case of uneven roller wear.

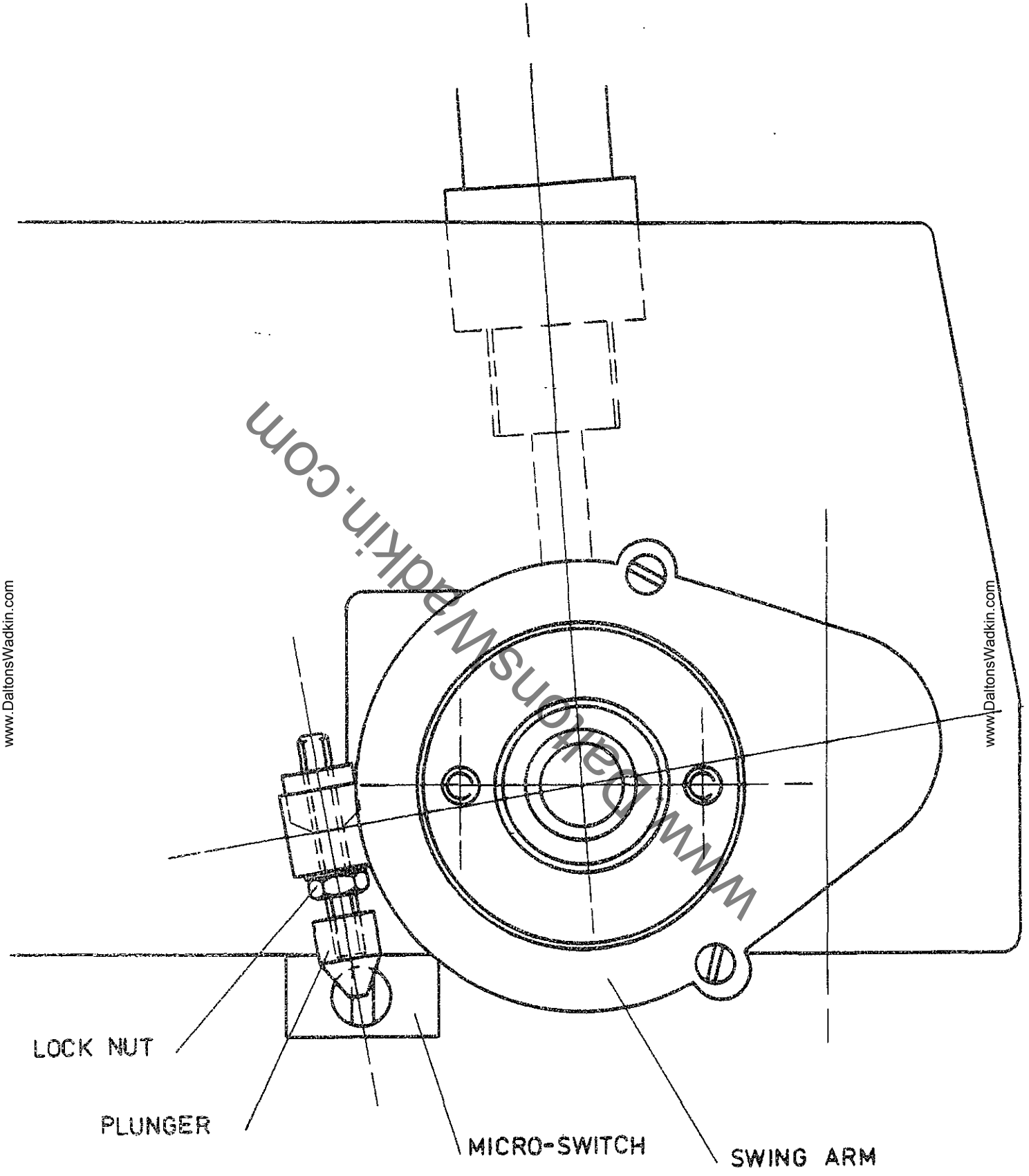


FIG.11 MICRO-SWITCHES ON FEEDWORKS

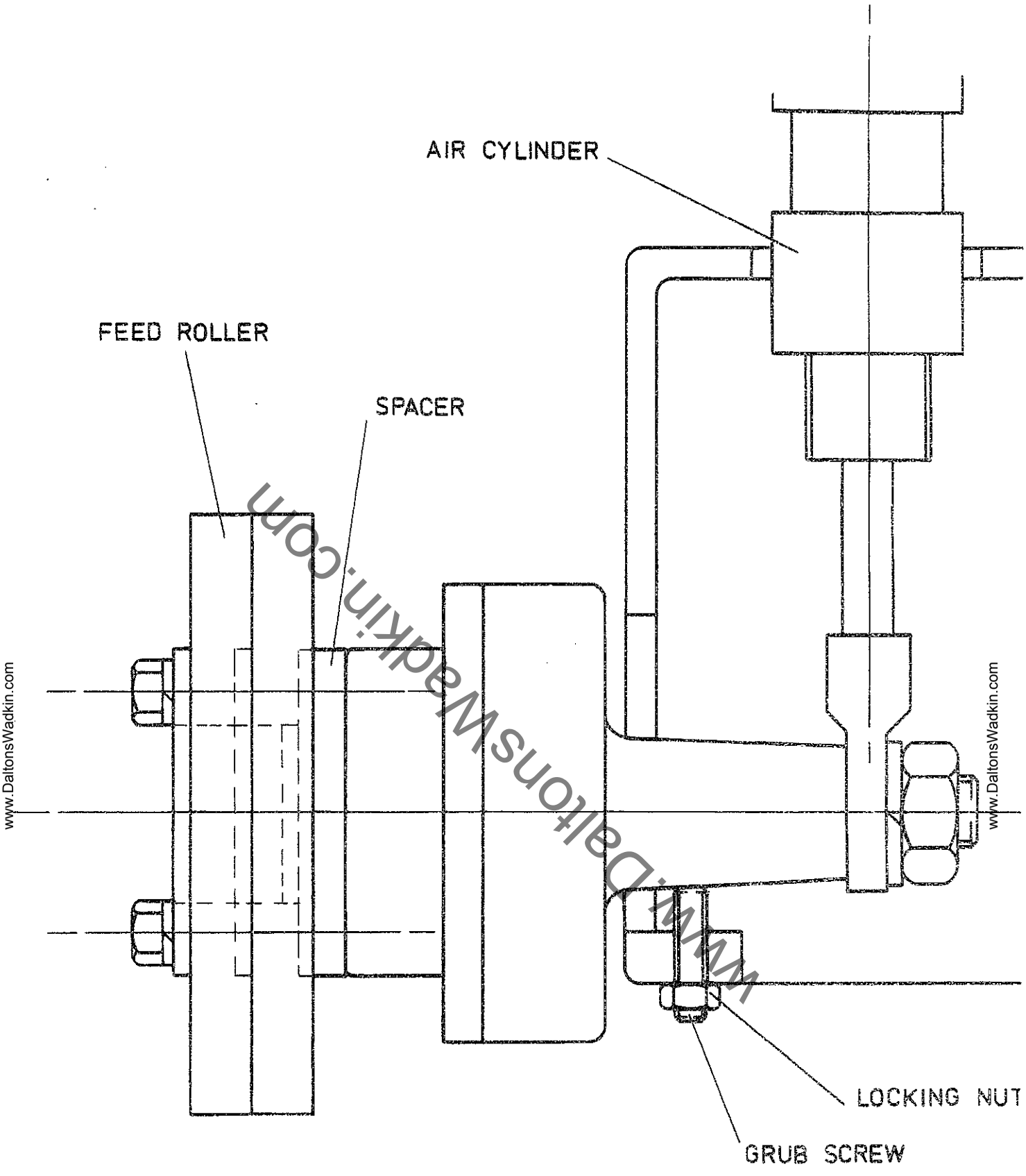


FIG.12 FEED ROLLER

FEEDWORKS WITH AXIS CONTROLS

Vertical movement is by a gearbox/motor encoder drive coupled to twin rise and fall screws.

There is a bar secured between table and feed unit column which has a recessed area at its lower end. Mounted to this bar are three cams which are for datum setting, top limit and bottom limit.

Traversing up and down with the feed unit are four micro switches displaced across the fixed bar, three of which are lined up with cams.

The fourth micro switch is opposite the bar and whilst in the recessed area allows the profile spindles to be. run.

If feed is outside this working area which is 160 mm. then profile spindles cannot be run. This is a safety feature for when tools are being changed or examined with the feed unit at high position.

Micro processor unit will always accept datum as 43 mm. when datum micro switch is depressed and feed is normally set to have 3 mm. roller yield at any given timber size.

e.g. Timber height = 67 mm.
Operator programs feed at 67 mm.
Rollers to table will be 64 mm.

SET UP PROCEDURE FOR AXIS

When the feed rollers have been aligned as outlined in SETTING FEEDWORKS continue as follows:-

1) Lower rollers until contact is made with test timber 40 mm. thick using manual control button (Fig.4).

2) Rotate the encoder body until the market pulse is found and lock the encoder up at this point.

3) Now 'inch' the feed rollers down a further distance equivalent to half revolution of the encoder, i.e. 3 mm.

4) Move the datum cam into the datum switch until it closes the contact, then move the cam out slowly until the contact opens.
Lock the cam at this position.

Once the datum cam is finally set, position the downward traverse end limit cam slightly lower. Feed should then be 'inched' upward and top limit cam set.

TURRET STOP

The six position turret stop is indexed by a pneumatically operated cylinder linked to a clutch mechanism.

A target disc identifies the correct position relative to six proximity switches and information is then relayed to the micro processor unit.

Clutch can be loosened or tightened by means of self locking adjustable nut and at each of six positions a a spring loaded ball is engaged.

Threaded hexagon bar stops are normally fitted to suit individual customer requirements and a maximum variation of 50mm. is possible.

In order that a turret can index, the relative spindle unit must be retracted clear of the working position. A micro switch at the rear of the unit monitors that this condition applies (Fig 13).

Other information may also be found in SETTING UP THE PROCESSOR and ILLUSTRATED PARTS LIST.

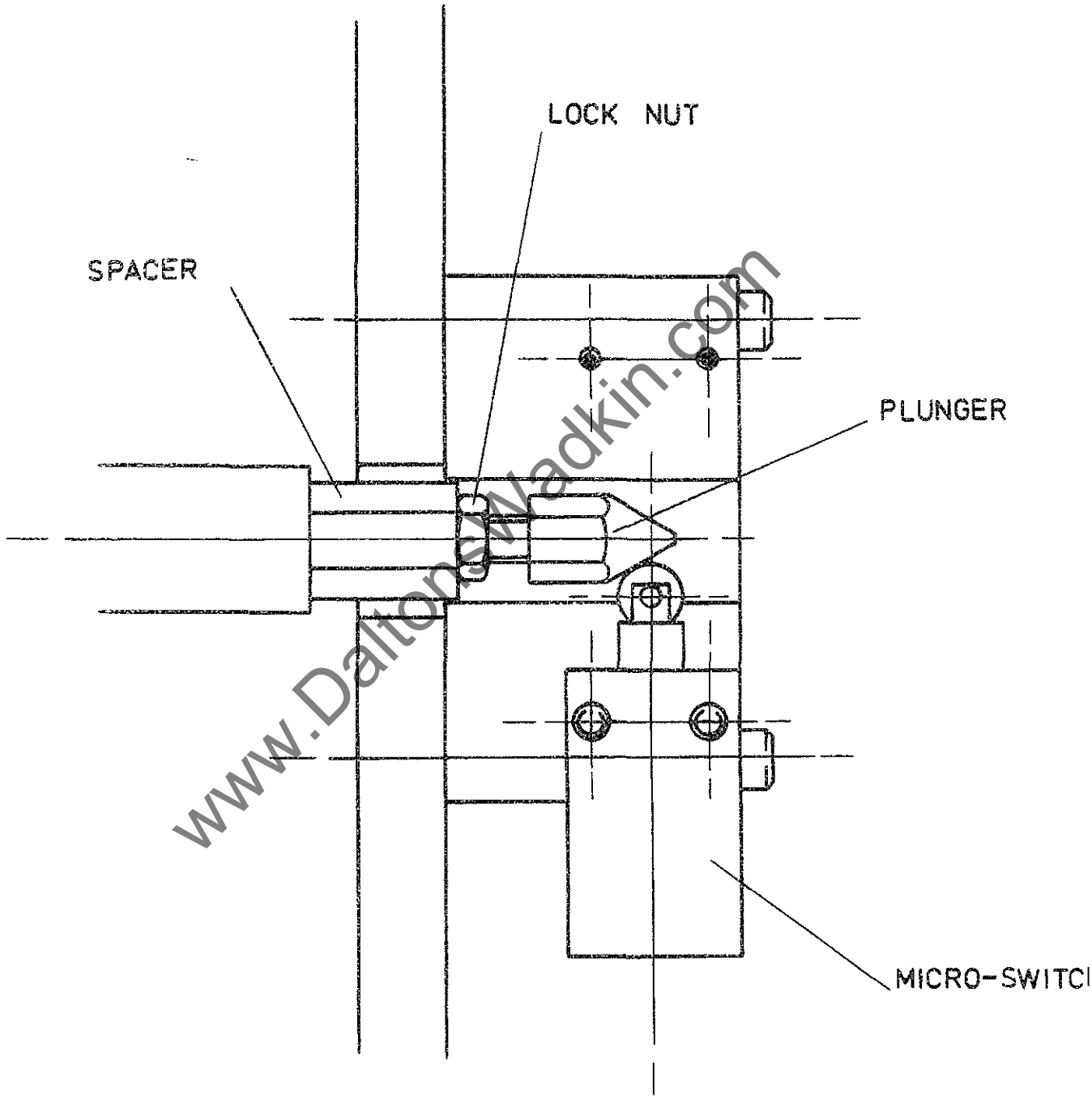


FIG.13 TURRET STOP MICRO-SWITCH

OUTSIDE PRESSURE GUIDE UNIT

Usually mounted on the sash support rail, it is mainly to control the timber at cutting points and in particular when a saw is being used.

Pressure is applied by pneumatic cylinders, normally set at 20 p.s.i. and the unit has its own plug-in socket and self regulating valve.

When sash profiling is being done the unit is removed.

TO SET UNIT

1) Undo the hexagon socket grub screws that hold the bars carrying sash support rail.

2) Fit pressure guide unit into appropriate slots in support rail and lock.

3) Using length of pre-planed parallel timber or setting blocks between fence and pressure, slide the sash support rail in until pressure guide is aligned.

4) Lock the hexagon socket grub screws on to bars and then adjust the hexagon headed screws (2) that are protruding from sash support rail until they contact the main table side.

Whenever the sash support rail is moved the hexagon headed screws will now ensure that the pressure guide can be quickly pushed back into a parallel condition. Normally the unit is set to give minimum yield on customers narrowest section. It will then allow up to 35mm variation without the need to pull out further. e.g. set at 50 mm, components up to 85 mm wide can be fed through.

BOTTOM/TOP PLANING UNIT

Usually built into machines with outside profiling heads (XOP range).

BOTTOM HORIZONTAL PLANING HEAD

Spindle will accept a 125 mm. dia. cutterblock.
There is only vertical adjustment of the spindle, adjusted by means of a handwheel situated below the unit. At the front of the unit is a locking lever.
Set cutterblock knives level with outfeed bedplate which is raised to give 0.5 mm. fixed depth of cut.

TOP HORIZONTAL PLANING HEAD

Spindle will accept a 125 mm dia.cutterblock.
There is only vertical adjustment of the spindle by a gearbox/motor encoder drive and datum setting is centre line of spindle 102.0 mm. from table.

Manual adjustment is by means of a handwheel which incorporates a clutch mechanism and is provided with a Siko Clock which indicates timber height (See PROGRAMMING).
To adjust the spindle vertically, unfasten locking lever and employ the handwheel.

To employ the automatic vertical adjustment, engage the changeover hand lever. Keep the hand on the changeover lever until the clutch is engaged. If the clutch does not readily engage, operate the handwheel by turning to the right or left until engagement is made.

SET UP PROCEDURE FOR AXIS

1) Manually move the spindle down to its datum position, i.e. spindle C/L to table 102 mm. (Spindle to table = 82 mm).

2) When this distance has been reached, set the Siko Clock at 39.5.

3) Rotate the encoder body until the market pulse is found and lock the encoder up at this point.

4) Now move the spindle a further distance equivalent to half a revolution of the encoder i.e. 1 mm. - Siko Clock should read 38.5.

5) Move the datum cam into the datum switch until it closes the contact, then move the cam out slowly until the contact open.
Lock the cam in this position.

Once the datum cam is finally set, position downward traverse end limit cam slightly lower.

As the end limit cam is double bevelled the spindle should be traversed up to establish where the top limit activates.

The minimum setting of top switch is 110 mm. move from datum. Should the head trip the switch before this figure is reached it is necessary to cut or file cam top bevel.

For further information see ILLUSTRATED PARTS LIST.

SETTING UP THE PROCESSOR

The best tooling arrangements will have been determined by Wadkin to suit individual customer requirements and detailed drawings are supplied indicating correct lay-out. From the drawings it is possible to roughly calculate the tool working positions relative to any particular component, but each one must be checked as slight deviations occur in tool manufacture.(Fig.14)

As positions are determined all relevant information is then recorded on the program sheet.(Fig.15 or Fig.16)

Most tools are supplied in sleeved sets so that accuracy is maintained and these are removed for machine delivery in order to avoid damage.

It is essential that tooling be loaded back in the sequence indicated on layout drawings.

ESTABLISHING THE PROGRAM

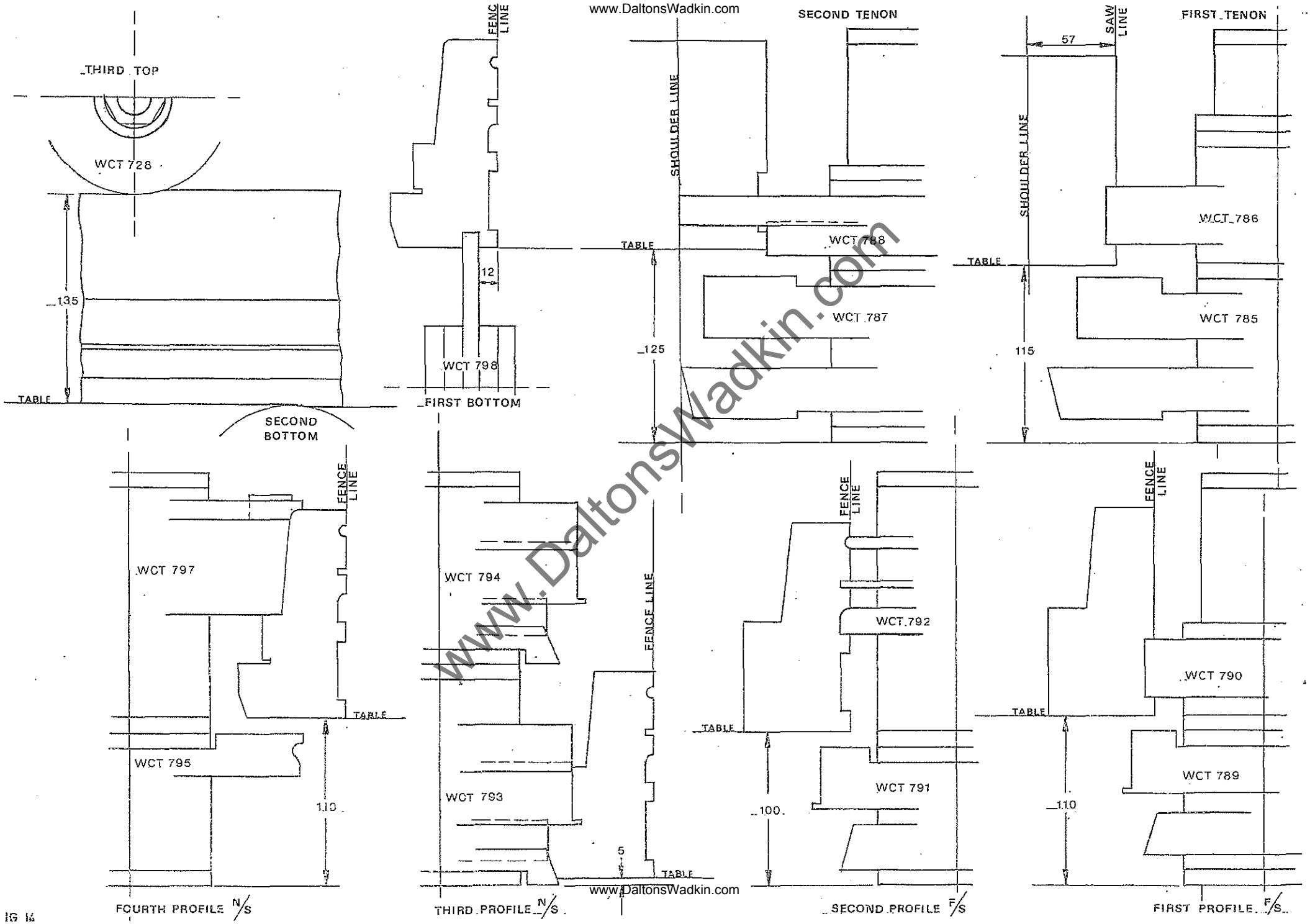
TENON SIDE - (WMC 6, 6XPC)

Until final positions of tenon tools are determined, it is best that the medium density fibreboard (MDF) backing piece is removed.

The shoulder line for all end profiles is 20 mm. from the table edge, this being the working position reached by the largest diameter tool sets (280 mmm to 380 mm) and this figure must be allowed for in all calculations.

Maximum distance of saw to table is 150 mm (DATUM). For the vertical tenon spindle the shoulder will position from 520 mm below table (DATUM) up to 5 mm below table. (Fig. 1-7)

All settings are carried out in MANUAL MODE on control panel (Fig. 2 & 3).



	DRIVE	HEAD POSITION	PROGRAM	POSITIONING AVAILABLE	READING
FIRST PASS		CUT OFF SAW		SCREW 0-140	
		FEED		STOP BAR 1-5	
		BACKING		TURRET 1-6	
		TENON IN/OUT		SCREW 0-70	
		TENON UP/DOWN		SCREW 0-520 mm	
		FIRST PROFILE IN/OUT		TURRET 1-6	
		FIRST PROFILE UP/DOWN		SCREW 0-185 mm	
		SECOND PROFILE IN/OUT		TURRET 1-6	
		SECOND PROFILE UP/DOWN		SCREW 0-185 mm	
		FIRST TOP IN/OUT	MANUAL	SIKO 0-30 mm	
		FIRST TOP UP/DOWN		UP/DOWN	SET STOP
		SECOND TOP IN/OUT	MANUAL	SIKO 0-30 mm	
		SECOND TOP UP/DOWN		UP/DOWN	SET STOP
	DRIVE	HEAD POSITION	PROGRAM	POSITIONING AVAILABLE	READING
SECOND PASS		CUT OFF SAW		SCREW 0-140	
		FEED		STOP BAR 1-5	
		BACKING		TURRET 1-6	
		TENON IN/OUT		SCREW 0-70	
		TENON UP/DOWN		SCREW 0-520 mm	
		FIRST PROFILE IN/OUT		TURRET 1-6	
		FIRST PROFILE UP/DOWN		SCREW 0-185 mm	
		SECOND PROFILE IN/OUT		TURRET 1-6	
		SECOND PROFILE UP/DOWN		SCREW 0-185 mm	
		FIRST TOP IN/OUT	MANUAL	SIKO 0-30 mm	
		FIRST TOP UP/DOWN		UP/DOWN	SET STOP
		SECOND TOP IN/OUT	MANUAL	SIKO 0-30 mm	
		SECOND TOP UP/DOWN		UP/DOWN	SET STOP

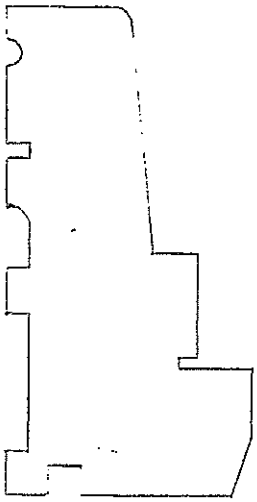
FIG. 16

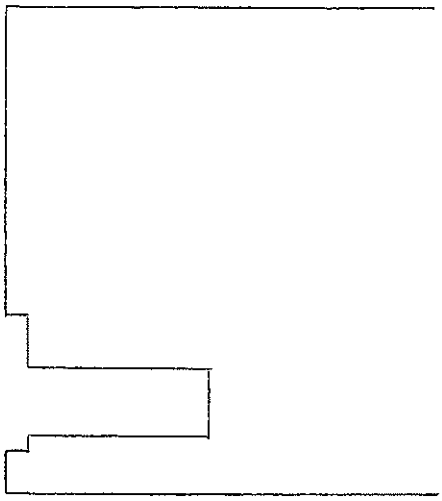
PROFILE :- Cill

PRODUCT :- Stage 1

WINDOW MACHINING CENTRE

WMC 5/2XOP





SAW DATUM = 152.0 mm

	DRIVE	HEAD POSITION	PROGRAM	POSITIONING AVAILABLE	READING
FIRST PASS		CUT OFF SAW	80.0	SCREW 0-140 mm	72.0
		FEED	1	STOP BAR 1-5	SET STOPS
		BACKING	1	TURRET 1-6	
		FIRST TENON IN/OUT		FIXED STOP OR	
			1	TURRET 1-6	SET STOP/S
		FIRST TENON UP/DOWN	75.0	SCREW 0-185 mm	
		SECOND TENON IN/OUT	1	FIXED STOP OR	
				TURRET 1-6	SET STOP/S
		SECOND TENON UP/DOWN	65.0	SCREW 0-185 mm	
SECOND PASS		CUT OFF SAW	80.0	SCREW 0-140 mm	72.0
		FEED	1	STOP BAR 1-5	SET STOPS
		BACKING	1	TURRET 1-6	
		FIRST TENON IN/OUT		FIXED STOP OR	
			1	TURRET 1-6	SET STOP/S
		FIRST TENON UP/DOWN	75.0	SCREW 0-185 mm	
		SECOND TENON IN/OUT	1	FIXED STOP OR	
				TURRET 1-6	SET STOP/S
		SECOND TENON UP/DOWN	65.0	SCREW 0-185 mm	
		FIRST TOP F/S IN/OUT	MANUAL	SIKO CLOCK 0-50 mm	
		FIRST TOP F/S UP/DOWN	0	UP/DOWN	SET STOP
		FIRST PROFILE F/S I/O	1	FIXED STOP OR	
				TURRET 1-6	SET STOP/S
		FIRST PROFILE F/S U/D	80.0	SCREW 0-185 mm	
		SECOND PROFILE F/S I/O	1	FIXED STOP OR	
				TURRET 1-6	SET STOP/S
		SECOND PROFILE F/S U/D	90.0	SCREW 0-185 mm	
		THIRD PROFILE N/S I/O	3	TURRET 1-6	SET STOPS
		THIRD PROFILE N/S U/D	175.0	SCREW 0-175 mm	
		FOUR PROFILE N/S I/O	4	TURRET 1-6	SET STOPS
		FOURTH PROFILE N/S U/D	70.0	SCREW 0-175 mm	
		SECOND TOP N/S I/O	0	SCREW 0-50 mm	
		SECOND TOP N/S U/D	MANUAL	SIKO CLOCK 0-30 mm	
		FIRST BOTTOM I/O	MANUAL	SIKO CLOCK 0-50 mm	12.0
		FIRST BOTTOM U/D	1	UP-DOWN	SET STOP
		SECOND BOTTOM I/O	———	FIXED PLANER	
		SECOND BOTTOM U/D	MANUAL	SIKO CLOCK 0-30 mm	SET TO BED
		THIRD TOP I/O	———	FIXED PLANER	
		THIRD TOP U/D	96.0	SCREW 0-110 mm	DATUM = 39
		FOURTH TOP F/S I/O	MANUAL	SIKO CLOCK 0-50 mm	
		FOURTH TOP F/S U/D	0	UP-DOWN	SET STOP

FIG. 15

HOGGING/CUT OFF SAW

1. Calculate position of saw in working mode allowing for joint length plus 20 mm shoulder line.

2. Press drive test button 4 on keypad.

   Display will show

STAGE 1 *CILL *PASS 1 *
c/o SAW MOVE (0-140.99)=

3. Key in calculated move and push ENT

   Saw will move forward from datum by the entered amount

   Display will show "POSITIONING" and then revert to

STAGE 1 *CILL *PASS 1 *
ENTER OPTION -

4. Check setting by using piece of suitably planed timber as follows:

   Hold timber to fence and push up to end trim stop.(Fig.8)
   Instigate clamps.
   Push automatic cycle start.
   Push and hold tenon table "inch" forward button.
   "Inch" the timber through the saw and then "inch" reverse.
   Before removing timber measure sawn end to table to see if dimension is as calculated at 1.

5. Should adjustment be necessary this is done by adding to or taking from the original move entered.

   When correct figure is obtained, this should be recorded on program sheet for subsequent entry into program memory.

   SIKO CLOCK SHOULD READ DISTANCE OF SAW TO TABLE
   All further programs can be established by following steps 1,2 and 3 only.

600mm TENON/COMBING SPINDLE WITH VERTICAL AND HORIZONTAL AXIS CONTROL

1. Calculate vertical and horizontal move from datum of required tool.

2. Press drive test button 4 on keypad

   Display will show

STAGE 1 *CILL *PASS 1 *
c/o SAW MOVE (0-140.99)=

3. Using ENT button progress through program until display shows

STAGE 1 *CILL *PASS 1 *
1st ten U/D MOVE (0-520.99)=

4. Key in calculated move and push ENT.

   Spindle will move up from datum by the entered amount.

   Display will show 'POSITIONING' and then revert to

STAGE 1 *CILL *PASS 1 *
ENTER OPTION -

5. Press drive test button 4

   Display will show

STAGE 1 *CILL *PASS 1 *
c/o SAW MOVE (0-140.99)=

6. Using ENT button progress through program until display shows

STAGE 1 *CILL *PASS 1 *
1ST TEN I/O MOVE (0-70.99)=

This indicates move available from DATUM.

7. Key in calculated move and push ENT.

   Spindle will move forward from DATUM by the entered amount.

   Display will show 'POSITIONING' and then revert to

STAGE 1 *CILL *PASS 1 *
ENTER OPTION -

N.B In some cases tool diameters may be smaller than main sets as their working position is further than 20 mm from table edge (e.g. Mortar groove cut out), in which case, make allowance as on drawings.

8. Ensure that Hogging/cut-off saw is at required working position as previously established.

   Ensure that tenon spindle is in forward position.

   Using planed up test timber, proceed as follows:-

   Instigate clamp.
   Push AUTOMATIC CYCLE START.
   Push and hold TENON TABLE 'INCH' FORWARD button.
   Feed through the saw and through the tenon spindle to obtain reference cut.
   'Inch' Reverse table and lift clamp.

9. Measure convenient part of slot/tenon depth and correct any vertical movement error by adding to or taking from the original move entered - Steps 1, 2, 3 and 4.

   When correct move from datum is established the SIKO clock should read 520 mm minus the move.

10. Measuring from sawn end of timber, check that slot/tenon length is correct.

    Should adjustment be necessary, this must be done by means of tenon horizontal move.

    Record vertical and horizontal spindle move on program sheet for subsequent entry into program memory.

FOR EACH TOOL SET ON THE SPINDLE, REPEAT ABOVE PROCEDURE

TENON SIDE - (WMC 1, 1XP, 1XPC, 2, 5, 5XOP, 5/2XOP)

Until final positions of tenon tools are determined, it is best that the medium density fibreboard (MDF) backing piece is removed.

The shoulder line for all end profiles is 15mm from the table edge, this being the working position reached by the largest diameter tool sets (300mm or 350mm) and this figure must be allowed for in all calculations.

Maximum distance of saw to table is 150mm (DATUM). For the vertical tenon spindles the shoulder will position from 190mm below table (DATUM) up to 5mm below table. (Fig. 1-6).

All settings are carried out in MANUAL MODE on control panel. (Fig. 2 & 3)

HOGGING/CUT OFF SAW

1. Calculate position of saw in working mode allowing for joint length plus 15mm shoulder line.

2. Press drive test button 4 on keypad.

   Display will show

STAGE 1 *CILL *PASS 1 *
c/o SAW MOVE (0-140.99)=

3. Key in calculated move and push ENT

   Saw will move forward from datum by the entered amount

   Display will show "POSITIONING" and then revert to

STAGE 1 *CILL *PASS 1 *
ENTER OPTION -

4. Check setting by using piece of suitably planed timber as follows:

   Hold timber to fence and push up to end trim stop.
   Instigate clamps.
   Push automatic cycle start.
   Push and hold tenon table 'inch' forward button.
   'Inch' the timber through the saw and then 'inch' reverse.
   Before removing timber measure sawn end to table to see if dimension is as calculated at 1.

5. Should adjustment be necessary this is done by adding to or taking from the original move entered.

   When correct figure is obtained, this should be recorded on program sheet for subsequent entry into program memory.

   SIKO CLOCK SHOULD READ DISTANCE OF SAW TO TABLE

   All further programs can be established by following steps 1, 2 and 3 only.

270mm TENON/COMBING SPINDLE AXIS CONTROL TO VERTICAL MOVEMENT

1. Calculate vertical move from datum of required tool
2. Press drive test button 4 on keypad

Display will show

STAGE 1 *CILL *PASS 1 *
c/o SAW MOVE (0-140.99)=

3. Using ENT button progress through program until display shows

or
(Appropriate spindle)

STAGE 1 *CILL *PASS 1 *
1st ten U/D (0-189.99)=

4. Key in calculated move and push ENT

Spindle will move up from datum by the entered amount.

Display will show 'POSITIONING' and then revert to

STAGE 1 *CILL *PASS 1 *
ENTER OPTION -

270mm TENON/COMBING SPINDLE WITH PNEUMATIC HORIZONTAL MOVEMENT TO A FIXED/ADJUSTABLE STOP.

When spindle is used with stop for forward position, then all tool sets fitted will comply to the same setting.

1. Ensure required tool set is in correct vertical position.

2. Ensure that tenon spindle is retracted from stop by using appropriate Manual spindle retract switch.

   Instigate clamp.
   Push automatic cycle start.
   Push and hold tenon table 'inch' forward button.
   'Inch' table to position convenient to tenon spindle.
   Using spindle retract switch adjust stop until largest cutter diameter is approximately 15mm from table edge.
   For turning the spindle take off brake.

3. 'Inch' reverse table and lift clamps.

4. Ensure that Hogging/Cut off saw is at required working position previously established.
   Ensure that tenon spindle is in forward position.
   Using planed up test timber proceed as previously described but through the saw and through the tenon spindle to obtain reference cut.

5. Measure convenient part of slot/tenon depth and correct any vertical movement error by adding to or taking from the original move entered - Steps 1 - 4 (Page 3-49)

   When correct move from DATUM is established the SIKO clock should read the same figure.

6. Measure from sawn end of timber check that slot/tenon length is correct. Should adjustment be necessary this must be done by means of fixed/adjustable stop.
   Record vertical spindle move on program sheet.
   With fixed stop, spindle will be either in or out.
   Record 0 for out or 1 for in on program sheet.

FOR OTHER TOOL SETS ON SPINDLE SET VERTICAL MOVE ONLY

270mm TENON/COMBING SPINDLE WITH PNEUMATIC HORIZONTAL MOVEMENT TO A SIX POSITION TURRET STOP.

1. Ensure required tool set is in correct vertical position.

2. Using ENT button progress through program until display shows

or

(Appropriate spindle)

STAGE 1 *CILL *PASS 1 *
1ST TEN I/O MOVE (0-6)=

This indicates 6 turret stop selections.

3. Ensure that tenon spindle is retracted from turret stop achieved by using appropriate manual spindle retract switch.

Key in required turret stop number and push ENT.

Turret will rotate to selected position.

Display will show 'POSITIONING' and then revert to

STAGE 1 *CILL *PASS 1 *
ENTER OPTION -

4. Instigate clamp

Push automatic cycle start.
Push and hold tenon table 'inch forward' button.
'Inch table' to position convenient to tenon spindle.
Using spindle retract switch adjust required turret stop until largest cutter diameter is approximately 15mm from table edge. For turning spindle take off brake.

N.B. In some cases tool diameters may be smaller than main sets as their working position is further than 15mm from table edge (e.g. Mortar groove cut out), in which case, make allowance as on drawings.

5. 'Inch reverse' table and lift clamps.

6. Ensure that Hogging/cut-off saw is at required working position previously established.

   Ensure that tenon spindle is in forward position.

   Using planed up test timber, proceed as previously described but feed through the saw and through the tenon spindle to obtain reference cut.

7. Measure convenient part of slot/tenon depth and correct any vertical movement error by adding to or taking from the original move entered - Steps 1, 2, 3 and 4 (page 3-49)

   When correct move from datum is established the SIKO clock should read the same figure.

8. Measuring from sawn end of timber, check that slot/tenon length is correct.

   Should adjustment be necessary, this must be done by means of turret stop.

   Record vertical spindle move and turret stop number on program sheet for subsequent entry into program memory.

FOR EACH TOOL SET ON THE SPINDLE, REPEAT ABOVE PROCEDURE

270mm TENON/COMBING SPINDLE WITH HORIZONTAL AXIS CONTROL

1. Ensure required tool set is in vertical position.
2. Calculate horizontal move from datum of required tool.
3. Press drive test button 4

Display will show

STAGE 1 *CILL *PASS 1 *
c/o SAW MOVE (0-140.99)=

4. Using ENT button progress through program until display shows

STAGE 1 *CILL *PASS 1 *
1ST TEN I/O MOVE (0-70.99)=

This indicates move available from DATUM.

5. Key in calculated move and push ENT.

Spindle will move forward from DATUM by the entered amount.

Display will show 'POSITIONING' and then revert to

STAGE 1 *CILL *PASS 1 *
ENTER OPTION -

N.B. In some cases tool diameters may be smaller than main sets as their working position is further than 15mm from table edge, (e.g. Mortar groove cut out), in which case make allowance as on drawings.

6. Ensure that Hogging/cut-off saw is at required working position as previously established.

   Ensure that tenon spindle is in forward position.

   Using planed up test timber, proceed as follows:

   Instigate clamp.
   Push automatic cycle start.
   Push and hold tenon table 'inch forward' button.
   Feed through the saw and through the tenon spindle to obtain reference cut.
   'Inch reverse' table and lift clamps.

7. Measure convenient part of slot/tenon depth and correct any vertical movement error by adding to or taking from the original move entered - Steps 1, 2, 3 and 4 (Page 3-49)

8. Measuring from sawn end of timber, check that slot/tenon length is correct.

   Should adjustment be necessary, this must be done by means of tenon horizontal move.

   When correct move from datum is established, the SIKO clock should read 230mm minus the move.

   Record vertical and horizontal spindle move on program sheet for subsequent entry into program memory.

FOR EACH TOOL SET ON THE SPINDLE, REPEAT ABOVE PROCEDURE

PROFILING SIDE

During setting, the feed rollers should be parked at top limit to allow access to profile spindles and auxiliary head units.

270mm FENCE SIDE VERTICAL PROFILE SPINDLES WITH AXIS CONTROL TO VERTICAL MOVEMENT AND PNEUMATIC HORIZONTAL CONTROL TO A FIXED/ ADJUSTABLE STOP.

1. Calculate vertical move from datum of the required tool set.

2. Press drive test button 4 on keypad.

   Display will show

STAGE 1 *CILL *PASS 1 *
c/o SAW MOVE (0-140.99)=

3. Using ENT button progress through program until display shows

   or
   Appropriate spindle

STAGE 1 *CILL *PASS 1 *
1ST PRO U/D MOVE (0-189.99)=

4. Key in calculated move and push ENT.
   Spindle will move up from datum by the entered amount.

   Display will show 'POSITIONING' and then revert to

STAGE 1 *CILL *PASS 1 *
ENTER OPTION -

5. Using spindle retract switch, adjust stop until smallest tool diameter (140mm) is in line with the fence - If single rebating type set to approximate position past fence.

6. Start up spindle in forward working position and manually feed test timber into the cutters to obtain reference.

7. Measure convenient part of mould e.g. rebate height and correct any vertical movement error by adding to or taking from the original move entered. Steps 1 - 4.
   When correct move from datum is established the SIKO clock should read the same figure.

8. Measure convenient part of mould, e.g. rebate depth and correct any forward error by adjusting fixed/adjustable stop.

   Record vertical spindle move on program sheet.
   With fixed stop, spindle will be either in or out.
   Record 0 for out or 1 for in on program sheet.

FOR ANY OTHER TOOL SETS ON SPINDLE SET VERTICAL MOVE ONLY

270mm FENCE SIDE VERTICAL PROFILE SPINDLES WITH AXIS CONTROL TO VERTICAL MOVEMENT AND PNEUMATIC HORIZONTAL CONTROL TO A 6 POSITION TURRET STOP.

1. Calculate move from datum of appropriate tool set.

2. Press drive test button 4 on keypad.

   Display will show

STAGE 1 *CILL *PASS 1 *
c/o SAW MOVE (0-140.99)=

3. Using ENT button progress through program until display shows

   or
   Appropriate spindle

STAGE 1 *CILL *PASS 1 *
1ST PRO U/D MOVE (0-189.99)=

4. Key in calculated move and push ENT. Spindle will move up from datum by the entered amount.

   Display will show 'POSITIONING' and then revert to

STAGE 1 *CILL *PASS 1 *
ENTER OPTION -

5. Press drive test button 4

   Display will show

STAGE 1 *CILL *PASS 1 *
C/O SAW MOVE (0-140.99)=

6. Using ENT button progress through program until display shows

STAGE 1 *CILL *PASS 1 *
1ST PRO I/O MOVE (0-6)=

This indicates 6 turret stop selections

7. Ensure that spindle is retracted from turret stop - Achieved by using appropriate manual retract Switch. (Fig. 2 & 3).

   Key in required turret stop number and push ENT. Turret will rotate to selected position.

Display will show 'POSITIONING' and then revert to

STAGE 1 *CILL *PASS 1 *
ENTER OPTION -

8. Using spindle retract switch adjust turret stop until smallest tool diameter 140mm is in line with the fence. If single rebating type set to approximate position past fence.

9. Start up spindle in forward working position and manually feed test timber into the cutters to obtain reference.

10. Measure convenient part of mould e.g. rebate height and correct any vertical movement error by adding to or taking from the original move entered Steps 1 - 4.

    When correct move from datum is established the SIKO clock should read the same figure.

11. Measure convenient part of mould e.g. rebate depth and correct any forward error by adjusting turret stop.

    Record vertical spindle move and turret stop number on program sheet.

FOR EACH TOOL SET ON THE SPINDLE REPEAT ABOVE PROCEDURE.

270mm NEAR SIDE VERTICAL PROFILE SPINDLES WITH AXIS CONTROL TO VERTICAL MOVEMENT AND PNEUMATIC HORIZONTAL CONTROL TO A 6 POSITION TURRET STOP.

1. Calculate move from datum of appropriate tool set.

2. Press drive test button 4 on keypad.

   Display will show

STAGE 1 *CILL *PASS 1 *
c/o SAW MOVE (0-140.99)=

3. Using ENT button progress through program until display shows

   or
   Appropriate spindle

STAGE 1 *CILL *PASS 1 *
3RD PRO U/D MOVE (0-179.99)=

4. Key in calculated move and push ENT.
   Spindle will move up from datum by the entered amount.

   Display will show 'POSITIONING' and then revert to

STAGE 1 *CILL *PASS 1 *
ENTER OPTION -

5. Press drive test button 4

   Display will show

STAGE 1 *CILL *PASS 1 *
C/O SAW MOVE (0-140.99)=

6. Using ENT button progress through program until display shows

STAGE 1 *CILL *PASS 1 *
3RD PRO I/O MOVE (0-6)=

This indicates 6 turret stop selections.

7. Ensure that spindle is retracted from turret stop - Achieved by using appropriate manual spindle retract switch.

   Key in required turret stop number and push ENT. Turret will rotate to selected position.

   Display will show 'POSITIONING' and then revert to

STAGE 1 *CILL *PASS 1 *
ENTER OPTION -

8. Using spindle retract switch adjust stop until smallest tool diameter (140mm) is in approximate required working position from fence.

9. Start up spindle in forward working position i.e. away from fence and manually feed test timber into the cutters to obtain reference.

10. Measure convenient part of mould e.g. rebate height and correct any vertical movement error by adding to or taking from the original move entered Steps 1 - 4.

    When correct move from datum is established the SIKO clock should read the same figure.

11. Measure width of mould and correct any error by adjusting turret stop.

    Record vertical spindle move and turret stop number on program sheet.

FOR EACH TOOL SET ON THE SPINDLE REPEAT ABOVE PROCEDURE.

FEED UNIT (CAM SET)

This has five working positions controlled by adjustable cams and micro-switches.

Cam 1 is used for reference and feed unit approaches in upward direction so if all five positions are required it should be used for highest component.

SETTING CAMS

1. Using manual operating switch situated on the side of the machine (Fig.4) lower rollers on to timber section to be fed, allowing 2 - 3 mm yield.

2. Slide contact cam to be used until such time the appropriate micro-switch clicks.

3. Select AUTOMATIC OPERATION at control panel and press drive test button 4 on keypad.

Display will show

STAGE 1	*CILL	*PASS 1 *
C/O SAW	MOVE (0-140.99)=	

4. Using ENT button progress through program until display shows

STAGE 1	*CILL	*PASS 1 *
FEED	MOVE (1-5)=	

5. Key in cam switch number required and push ENT. Feed will then raise up to cam 1 and then move down to cam selected if different.

Display will show 'POSITIONING' and then revert to

STAGE 1	*CILL	*PASS 1 *
ENTER OPTION -		

6. Check with timber for correct height and adjust slide contact cam if required.

Repeat procedure until satisfied and record feed position number on program sheet.

FEED UNIT WITH AXIS CONTROL

When machine has this unit fitted the program figure will always be timber height (See Page 3-37)

AUXILIARY SHORT VERTICAL SPINDLE UNIT

1. Position manually adjusted slide on machine to bring tool into approximate working position. This move is always vertical.

2. Using manual operating switch situated on the side of machine (Fig.4) adjust stop, controlling pneumatic stroke position.

3. Start up spindle in working position and manually feed test timber into the cutters to obtain reference.

4. Correct errors by adjusting manual slide and/or stroke depth stop.

   Record 0 for out or 1 for in, on program sheet.

AUXILIARY TOP HEAD FENCE SIDE

1. Position manually adjusted slide on machine to bring tool into approximate working position. This move can be either horizontal or vertical.

2. Using manual operating switch situated on the side of machine (Fig.4) adjust stop, controlling pneumatic stroke position.

3. Start up spindle in working position and manually feed test timber into the cutters to obtain reference.

4. Correct errors by adjusting manual slide and/or stroke depth stop.

   Record 0 for out or 1 for in, on program sheet.

AUXILIARY NEARSIDE TOP HEAD WITH AXIS CONTROL TO HORIZONTAL MOVEMENT

1. Position manually adjusted slide on machine to bring tool into approximate working position.

2. Calculate working position of tool from 'DATUM' and instigate move. This move is always horizontal.

3. Start up spindle in working position and manually feed test timber into the cutters to obtain reference.

4. Correct errors by adjusting manual slide and/or move from 'DATUM'

   Record horizontal spindle move on program sheet.

AUXILIARY BOTTOM HEAD

1. Space tool at suitable working position on spindle (i.e. within adjustment range of 35mm) and manually adjust to approximate working position. This move is always horizontal.

2. Using manual operating switch situated on the side of machine (Fig.4) adjust stop controlling pneumatic stroke position.

3. Start up spindle in working position and manually feed test timber into the cutter to obtain reference.

4. Correct errors by adjusting manual slide and/or stroke depth stop.
   Record 0 for out or 1 for in, on program sheet.

   Set SIKO clock reading on manual slide to suitable figure, e.g. Tool to fence distance and record on program sheet.

   NOTE:- Setting of bottom head is carried out with 'bed filling in piece' removed.

   When correct working position is obtained

   A) Lower tool
   B) Insert filling in piece
   C) Lower feed unit to trap test timber over filling in piece.
   D) Start spindle and raise tool
   E) Lower tool, raise feed and remove test timber.

BOTTOM HEAD (FINISH PLANING UNIT)

Head is permanently set to bed level giving a cut of 0.5mm. (See SETTING UP THE MACHINE)

TOP HEAD (FINISH PLANING UNIT)

Head has fixed horizontal position and axis control to rise and fall. Datum is at lowest position of spindle to bed but to make calculations easier the figure given is distance of rotating cutters to bed (Fig.1-10) and noted on program sheet.

1. Calculate vertical move from datum of cutting circle.

2. Press drive test button 4 on keypad

   Display will show

STAGE 1 *CILL *PASS 1 *
C/O SAW MOVE (0-140.99)=

3. Using ENT button progress through program until display shows

   or
   (Appropriate position of spindle in machine build up).

STAGE 1 *CILL *PASS 1 *
3RD TOP MOVE (0-110)=

4. Key in calculated move and push ENT.
   Spindle will move up from datum by the entered amount.

   Display will show 'POSITIONING' and then revert to

STAGE 1 *CILL *PASS 1 *
ENTER OPTION

5. Start up spindle and manually feed test timber into the cutters to obtain reference.

6. Measure timber and correct any error by adding to or taking from the original move entered - Steps 1 - 4.

   When correct move from datum is established the SIKO clock should read timber size, i.e. MOVE Plus DATUM.

   This allows operator to quickly check that head is in correct working position.

BACKING PIECE

When the tenon spindles are correctly programmed for all tool positions, the backing piece can be fitted ready for cutting.

Before cutting, however, the backing should be indexed via pushbutton panel to each of the six available positions and 10mm holes drilled and reamed through. A hardened steel bush is fitted permanently to facilitate this operation.

TO INDEX BACKING FOR DRILLING HOLES

1. Press drive test button 4 on keypad.

Display will show

STAGE 1 *CILL *PASS 1 *
C/O SAW MOVE (0-140.99)=

2. Using ENT button progress through program until display shows

STAGE 1 *CILL *PASS 1 *
BACKING MOVE (0-6)=

3. Key in 1 and push ENT.
Turret will index backing to positon 1.

Display will show 'POSITIONING' and then revert to

STAGE 1 *CILL *PASS 1 *
ENTER OPTION -

4. Repeat steps 1 - 3 and enter each backing position in turn i.e. 2, 3, 4, 5 and 6.

TO CUT BACKING PIECE

1. Using drive test button 4 and ENT button set one end profile using recorded figures of saw and tenon spindle.

2. Using drive test button 4 and ENT button find backing in display panel as previously described for drilling.

   Select turret number required (1-6) and push ENT.
   Backing will not rotate to position selected.

3. Locate 10mm dia. pin through bush and into hole.
   Instigate clamps on.

   Push automatic cycle start.
   Push and hold tenon table 'inch' forward button.

   'Inch' through rotating spindle until profile is cut in backing piece and then 'inch' reverse.

   Remove 10mm dia. pin.
   Repeat above procedure for each end profile and record turret stop numbers on program sheet.

   The location pin is not used again unless the backing piece is removed, in which case it is needed for re-location. See SETTING UP THE MACHINE for more information on the backing piece.

KEYPAD FUNCTIONS (Fig.17)

Used for entering information into the Micro-processor memory bank. Certain numbers have a dual function and are used in the first instance to obtain information and then as normal keys.

Drive names in memory are pre-determined by Wadkin to suit individual machines and are non-erasable.

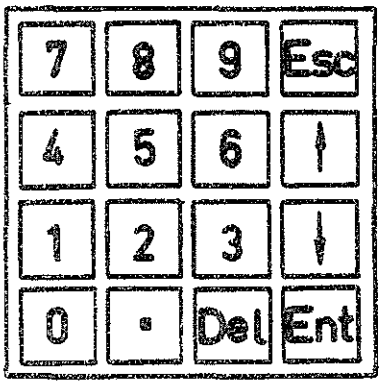


FIG.17

0	ENTER ZERO
1	DEFINE DRIVE
2	ENTER NAMES (PRODUCT-COMPONENT)
3	ENTER MOVES
4	DRIVE TEST (SINGLE HEAD WORKING)
5	TASK STATUS - SERVICE ENGINEER USE
6	BIT TEST - SERVICE ENGINEER USE
7	LENGTH STOP
8	NOT USED
9	NOT USED
.	MONITOR - SERVICE ENGINEER USE
DEL	DELETE INCORRECT ENTRY
ENT	ENTER INFORMATION (ACTIVATES DRIVE TEST)
ESC	ESCAPE
↑	ALPHA NUMERIC INSERTION - USE WITH 2
↓	ALPHA NUMERIC INSERTION - USE WITH 2

PUSH BUTTON 2 - (ENTER COMPONENT NAME)

With product selection switch at 1 and component selection switch at 1 then display will show

PRODUCT 1 *COMP.1. *PASS 1 *
ENTER OPTION -

PRESS BUTTON 2

Display will show

PRODUCT 1 *COMP.1. *PASS 1 *
COMPONENT NAMES

PRESS ENT

Display will show

PRODUCT 1. *COMP.1. *PASS 1 *
1. COMP.1

USING ARROW BUTTONS ↑ ↓

Key in letters to make up component name

PRODUCT 1. *COMP.1. *PASS 1 *
1. COMP.1 CILL

PRESS ENT

Display will show

PRODUCT 1. COMP.1. *PASS1 *
2. COMP.2

USING ARROW BUTTONS ↑ ↓

Sequence is repeated for each component up to a maximum of 10. Display will revert to Enter Option after 10 or press ESC on keypad. All component numbers entered will be selected from component selection switch and names displayed at centre of display.

PUSH BUTTON 2 - (ENTER PRODUCT NAMES)

With product selection switch at 1 and component selection switch at 1 and component names entered, then display will show

PRODUCT 1 *CILL *PASS 1 *
ENTER OPTION -

PRESS BUTTON 2

Display will show

PRODUCT *CILL *PASS 1 *
COMPONENT NAMES

PRESS ARROW BUTTON ↑

Display will show

PRODUCT 1 *CILL *PASS 1 *
PRODUCT NAMES

PRESS ENT

Display will show

PRODUCT 1 *CILL *PASS 1 *
1.PROD. 1

USE ARROW BUTTONS ↑ ↓

Key in letters to make up product name

PRODUCT 1 *CILL *PASS 1 *
1.PROD. 1 STAGE 1

PRESS ENT

Display will show

PRODUCT 1 *CILL *PASS 1 *
2.PROD. 2

USE ARROW BUTTONS ↑ ↓

Sequence is repeated for each Product up to a maximum of 4. Display will revert to Enter Option after 4, or press ESC on pushbutton panel. All product numbers entered will be selected from Product selection switch and names displayed at top left of display.

PUSH BUTTON 3 - (ENTER PROGRAM)

On main panel (Fig.3) select product 1-4 . Component 1-10 and Pass 1 or Pass 2.

Example: PRODUCT 1
COMPONENT 1
PASS 1
Display shows

STAGE 1	*CILL	*PASS 1	*
ENTER OPTION -			

PRESS BUTTON 3

Display will show

STAGE 1	*CILL	*PASS 1	*
C/O SAW	MOVE (0-140.99) = 0.00		

KEY IN MOVE FROM PROGRAM SHEET EG.80

Display will show

STAGE 1	*CILL	*PASS 1	*
C/OFF SAW	MOVE (0-140.99)=0.00 80		

PRESS ENT

Display will show

STAGE 1	*CILL	*PASS 1	*
FEED	MOVE (1-5)=0		

KEY IN CAM NUMBER FROM PROGRAM SHEET EG.1

Display will show

STAGE 1	*CILL	*PASS 1	*
FEED	MOVE (1-5) = 0 1		

PRESS ENT

Display will show
(Any figure shown to be ignored)

STAGE 1	*CILL	*PASS 1	*
STOP BAR (0-299) = XXXXXX ?			

PRESS ENT

Display will show

STAGE 1	*CILL	*PASS 1	*
BACKING	MOVE (0-6) = 0		

KEY IN TURRET NUMBER FROM PROGRAM SHEET

Sequence is continued through program until the last unit and the display will revert to ENTER OPTION.

Repeat operations for each component in a product range.

When checking through sequence after information has been entered, all zero numbers will have been replaced by the new numbers. Decimal places of whole numbers need not be put in.

N.B. THE SEQUENCE SHOWN IS FOR GUIDANCE ONLY

As each WMC machine is supplied to individual customer requirements, display may differ slightly.

Information displayed will always be applicable to the relative program sheets.

EG - FEED will show either cam setting as illustrated or axis control.

PUSHBUTTON 4 - (DRIVE TEST)

This will display drives and moves available starting with C/OFF SAW and pushing the ENT button will move through program. if a particular drive is required to move - select figure or number and push ENT button.

EXAMPLE: To move 1st TENON up 50mm from datum.

Display shows

PRODUCT 1 *COMP.1 *PASS 1 *
ENTER OPTION -

PRESS BUTTON 4

Display shows

PRODUCT 1 *COMP.1 *PASS 1 *
C/OFF SAW MOVE (0-140.99) =

PRESS ENT

Display shows

PRODUCT 1 *COMP.1 *PASS 1 *
FEED MOVE (1-5) =

PRESS ENT

Display shows
(Not used to enter length)

PRODUCT 1 *COMP.1 *PASS 1 *
STOP BAR (0-299) =

PRESS ENT

Display shows

PRODUCT 1 *COMP.1 *PASS 1 *
BACKING MOVE (0-6) =

PRESS ENT

Display shows

PRODUCT 1 *COMP.1 *PASS 1 *
1ST TEN I/O MOVE (0-6)=

PRESS ENT

Display shows

PRODUCT 1 *COMP.1 *PASS 1 *
1ST TEN U/D MOVE (0-189)=

KEY IN 50 AND PRESS ENT

Display shows

PRODUCT 1 *COMP.1 *PASS 1 *
POSITIONING

When in position display reverts to enter option.

PRODUCT 1 *COMP.1 *PASS 1 *
ENTER OPTION

Earlier information keyed in, i.e. 50 is then automatically deleted and not stored in memory.

N.B. THE SEQUENCE SHOWN IS FOR GUIDANCE ONLY

As each WMC machine is supplied to individual customer requirements, display may differ slightly.

Information displayed will always be applicable to the relative program sheets.

EG - FEED will show either cam setting as illustrated or axis control

PUSH BUTTON 7 - (LENGTH STOP)

This button is only used when machine is fitted with automated stop.

Display shows

PRODUCT 1 *COMP.1 *PASS 1 *
ENTER OPTION -

PRESS BUTTON 7

Display shows (or previous length keyed in)

PRODUCT 1 *COMP.1 *PASS 1 *
ENTER LENGTH 0.00

KEY IN REQUIRED LENGTH e.g.1250

Display shows

PRODUCT 1 *COMP.1 *PASS 1 *
ENTER LENGTH 0.00 1250

PRESS ENT

Display shows

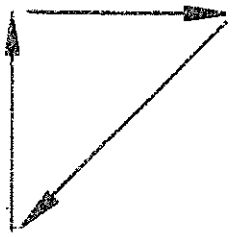
PRODUCT 1 *COMP.1 *PASS 1 *
ENTER OPTION -

By pressing the blue length stop move button, the stop will position to entered dimension relative to the saw position.

Each length entered is retained in memory until such time that above procedure is repeated and new length keyed in.

OPERATING MODES

MODE 1 (WMC 1xP, 1xPC OR 6xPC)



TENON ONE END AND PROFILE

Clamps will come down and tenon table will automatically start to forward feed at feed rate required.

Table continues up to the profiling unit where it is ramped down to 'creep' speed for alignment with fence line.

At this point the timber forces back the two piece feeding pusher and passes over disappearing dogs.

At correct alignment position a micro-switch is made and this releases the clamps and returns table at fast feed to the operator for loading of next workpiece.

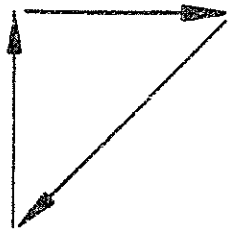
Timber is retained at profiling unit against spring loaded disappearing dogs.

After a slight time delay the air pressure is released from the pusher, fence flap is pushed into line for support and the first two feed rollers drop down thus feeding the first piece of timber into the profiling unit.

When the first piece has cleared the roller fitted with a micro-switch, this lifts first two feed rollers and returns air pressure to the pusher allowing second piece of timber to be fed into the profiling unit. (If two piece feeding selected). Both pieces are fed through to complete profiling and returned to the operator via roller conveyor.

It is important to ensure that the timber matches what is selected i.e., 1 or 2 piece selection, otherwise sequencing can be affected causing a 'hang up'.

MODE 1 (WMC 5, 5xOP OR 5/2xOP)



TENON ONE END AND PROFILE

Clamps will come down and tenon table will automatically start to forward feed. At each cutting point selected in the program the table will slow down to a feed rate required. This is controlled via cam bars and proximity switches.

Other than the cutting points, the table will traverse at maximum speed of 20 m/min.

Having cleared the selected tenon head/s table continues up to the profiling unit where it is ramped down to 'creep' speed for alignment with the fence line.

At this point the timber forces back the two piece feeding pusher and passes over disappearing dogs.

At correct alignment position a proximity switch sights the cam bar and this releases the clamps and returns table at fast feed to the operator for loading of next workpiece.

Timber is retained at profiling unit against spring loaded disappearing dogs.

After a slight time delay the air pressure is released from the pusher, fence flap is pushed into line for support and the first two feed rollers drop down thus feeding first piece of timber into the profiling unit.

When the first piece has cleared the roller fitted with a micro switch, this lifts first two feed rollers and returns air pressure to the pusher allowing second piece of timber to be fed into the profiling unit. (If two piece feeding selected). Both pieces are fed through to complete profiling and returned to the operator via roller conveyor.

It is important to ensure that the timber profiling, matches what is selected i.e. 1 or 2 piece selection, otherwise sequencing can be affected causing a 'hang up'.

MODE 2 (WMC1, 1xP, 1xPC, 6 OR 6xPC)

TENON ONLY

Clamps will come down and tenon table will automatically start to forward feed at feed rate required. Having cleared tenon head the table returns at fast feed to the operator ramping down to 'creep' speed for final alignment and clamps are released.

Repeat above procedure with pass 2 selection (if different tenon length) and utilise length stop for correct requirements.

This cycle is repeated each time AUTOMATIC CYCLE START button is pressed.

MODE 2 (WMC 2, 5, 5xOP OR 5/2xOP)

TENON ONLY

Clamps will come down and the tenon table will automatically start to forward feed. At each cutting point selected in the program the table will slow down to a feed rate required, this is controlled via cam bars and proximity switches.

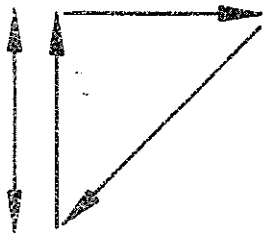
Other than the cutting points the table will traverse at a maximum speed of 20 m/min.

Having cleared selected tenon head/s the table returns at fast feed to the operator ramping down to 'creep' speed for final alignment and clamps are released.

Repeat above procedure with pass 2 selection (if different tenon length) and utilise length stop for correct requirements.

This cycle is repeated each time AUTOMATIC CYCLE START button is pressed.

MODE 3 (WMC 1xP, 1xPC or 6xPC)



TENON TWO ENDS AND PROFILE

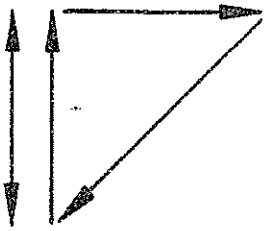
Clamps will come down and the tenon table will automatically start to forward feed at feed rate required.

Having cleared tenon head the table returns at fast feed to the operator, ramping down to 'creep' speed for final alignment and clamps are released.

Instigate machine set up with pass 2 if different tenon length.
Timber is turned round and located against length stop.

When 'READY' on screen press AUTOMATIC CYCLE START button and machine works as MODE 1.

MODE 3 (WMC 5, 5xOP OR 5/2xOP)



TENON TWO ENDS AND PROFILE.

Clamps will come down and the tenon table will automatically start to forward feed. At each cutting point selected in the program the table will slow down to a feed rate required. This is controlled via cam bars and proximity switches.

Other than the cutting points the table will traverse at a maximum speed of 20 m/min.

Having cleared selected tenon head/s the table returns at fast feed to the operator, ramping down to 'creep' speed for final alignment and clamps are released.

Instigate machine set up with pass 2 if different tenon length.
Timber is turned round and located against length stop.

When 'READY' on screen, press AUTOMATIC CYCLE START button and machine works as MODE 1.

SASH PROFILING

Machines with open sided profiling unit can be used for sash profiling or storm-proofing the built up sashes. When this feature is incorporated there will be an additional switch on the main control panel indicating SASH (Fig.2).

If selected, certain functions on the machine are changed as follows:-

1) Tenon table will not traverse forward.
2) Micro switch controlling first two feed rollers is changed in function to control 'jump' spindle.
3) First or second profile spindle (dependent upon model) will have rotation reversed.

OPERATING

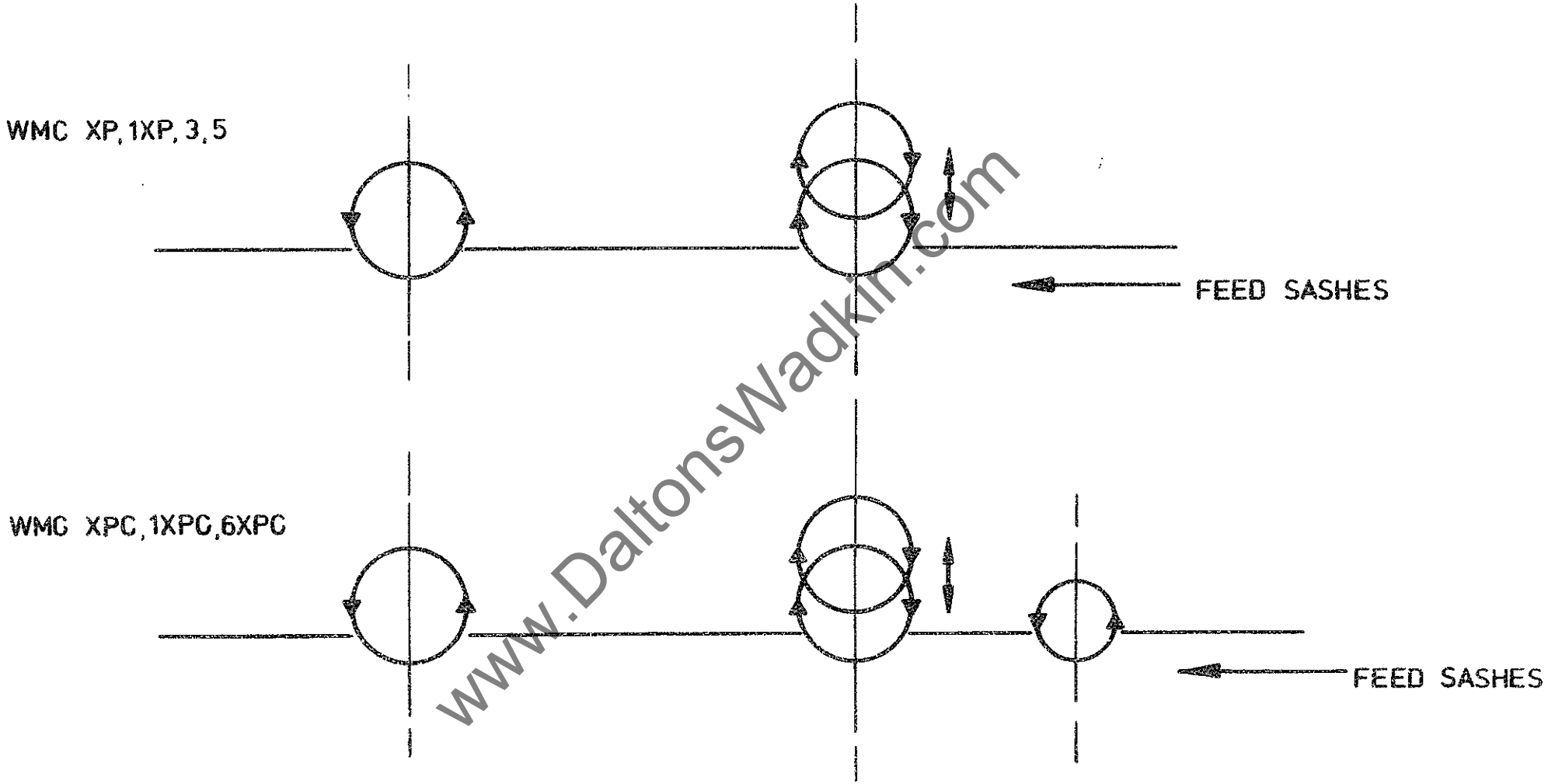
Remove transfer pusher unit from location and also outside pressure unit from sash support rail. Pull sash support rail out to required working position and lock.

With appropriate profile spindles and feed unit running, each built up sash is fed through four times.

As leading edge of sash lifts the roller fitted with a micro switch, this signals contra rotating spindle to retract from working position.

When the roller drops off the back edge of sash, this signals contra rotating spindle to return to working position after a short time delay.

FIG.18 SASH PROFILING



STARTING PROCEDURE

Having set the machine and loaded the programs into micro-processor memory, running can commence when timber is available.

Timber must be presented to the machine in a straightened and planed all round condition to finished dimensions. On XOP models timber should be at least plus 3mm on thickness and plus 1mm on width to allow cleaning up.

Best results will always be obtained if pre-planed timber is not left standing for long periods as pieces will shrink and twist.

STARTING IN AUTOMATIC OPERATION

1. Check that master stop is out.
2. Press power on button.
3. Press automatic operation button.
4. Select Product - Will show top left of display panel.
5. Select Component - Will show top centre of display panel.
6. Instigate machine set up - Will read "POSITIONING" on display panel. When all axies are in position "READY" will appear at top right of display panel.
7. Select operating mode.
8. Select 1st pass.
9. Select 1 or 2 piece working.
10. Set required feed control for tenon table.
11. Start all required spindles and feed unit.
12. Place timber on tenon table and push up to end trim stop, holding firmly against fence and backing piece.
13. Push automatic cycle start button.

SECTION 4

M A I N T E N A N C E

Scheduled maintenance consists of regularly maintaining the machine in a good operating condition, capable of safely producing, good quality trouble free work, with the minimum of down time.

This includes tasks such as daily/weekly cleaning and lubrication which can and should be performed by the operator. Tasks carried out at longer intervals will require more specialised knowledge and tools.

LUBRICATION

Much attention has been given to keeping lubrication and maintenance to a minimum. In consequence 'sealed for life' bearings and 'oilite' bushes have been used where possible.

The tenon spindles, profile spindles and stack tooling tenon spindle all have Kluber grease packed bearings which require no lubrication and should give trouble free service. These should only require lubricant if the spindle bearings are replaced.

Also the spindles on the Horizontal Auxiliary heads are shielded and have 'sealed for life' bearings.

However, there are exceptions - these are as follows:-

Electric motors where 'sealed for life' bearings are not fitted, are provided with grease nipples.

Daily.

Grease the slideways and the various traverse screws, also the ballscrew and the ground bar on the tenon beam. Grease the spline shaft and the rise and fall nut on the vertical spindles using Wadkins Grade L6 grease.

Weekly.

Grease the rise and fall screw and the bearing on the end of the feed works beam using Wadkin Grade L6 grease.

On the same feed works support arms which carry the grease nipples for the rise and fall screw, there is also fitted an oil 'pot' to lubricate the support pillar use. Use Wadkin L4 oil.

Monthly

Grease the bevel gears, chains and sprockets on the feed roller drive using Wadkin L2 grease. Lubricate all electric motors fitted with grease nipples, using Wadkin L6 grease.

3 monthly

Grease all remaining slides and screws not mentioned above.

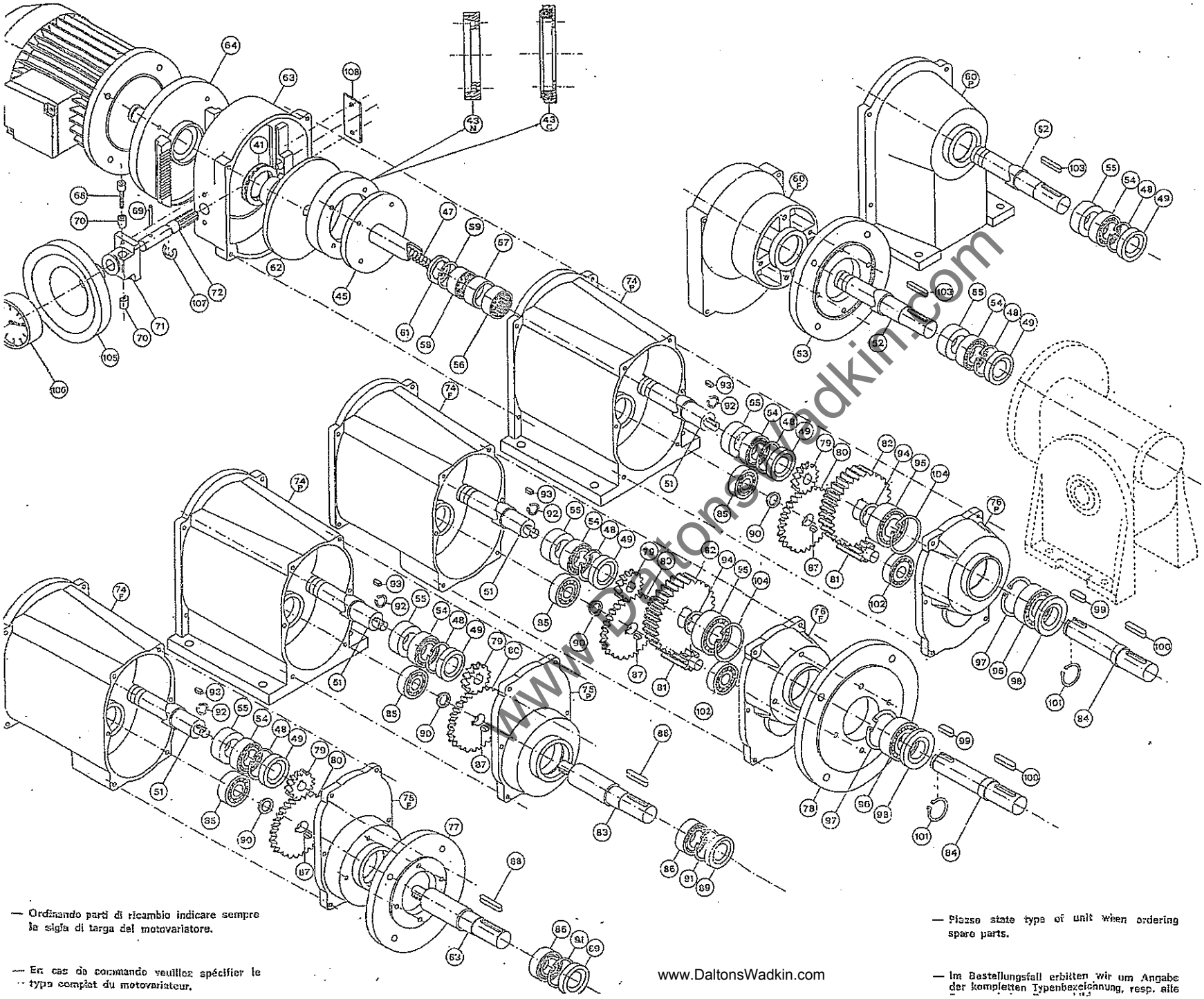


FIG.1 VARIABLE DRIVE

SPARE PARTS

41	Thrust bearing
43N	Plastic friction ring
43C	Carbon friction ring
45	Flange with hollow shaft
47	Helical spring
48	Circlip
49	Oilseal
51	Cam shaft
52	Cam shaft
53	Flange
54	Ball bearing
55	Spacer
56	Bearing
57	Spacer
58	Bearing
59	Circlip
60F	Anterior housing (flange
60P	Anterior housing (foot)
61	Oilseal
62	Conical driving disc
63	Hind housing
64	Slide with rack
66	Screw
69	Pin
70	Friction brakes
71	Block
72	Toothed regulation shaft
74F	Gearcase R/RR (flange)
74P	Gearcase R/RR (foot)
75F	Cover R (flange)
75P	Cover R (foot)
76F	Cover RR (flange)
76P	Cover RR (foot)
77	Flange R
78	Flange RR
79	First pinion
80	First gear
81	Second pinion
82	Second gear
83	Output shaft R
84	Output shaft RR
85	Bearing
86	Bearing
87	Key
88	Key
89	Oilseal
90	Spacer
91	Circlip
92	Circlip
93	Key
94	Spacer
95	Bearing
96	Bearing
97	Circlip
98	Oilseal
99	Key
100	Key
101	Circlip or locknut
102	Bearing
103	Key
104	Circlip
105	Handwheel
106	Position indicator
107	Circlip
108	Plate

— Ordinando parti di ricambio indicare sempre la sigla di targa del motovariatore.

— En cas de commande veuillez spécifier le type complet du motovariateur.

— Please state type of unit when ordering spare parts.

— Im Bestellungsfall erbitten wir um Angabe der kompletten Typenbezeichnung, resp. alle

VARIABLE SPEED DRIVE (Fig.1)

Maintenance

Grease every 3 months, the bearing on the adjustable driving wheel via the grease nipple. It is despatched from the works, already filled with oil and should not require any attention for at least 5000 - 6000 working hours.

It may occur that in the course of normal running, the speed of the drive may drop. To correct this, tighten the brake screw behind the speed change hand-wheel.

Replacing the friction wheel lining.

If the unit does not operate correctly, probably the friction ring is worn. Its life depends on the work the unit has to perform. If for instance the unit is mainly operated at low speed, the friction ring will be subjected to greater wear.

To replace the friction ring, proceed as follows:-

- Open the casing at A-A. (See Fig.2)
- Loosen screws (e) to remove friction ring (d) from wheel (f). Fit the new friction ring to the wheel and secure it by means of screws (e).
- Wheel (f) can be removed from the bearings along the hollow shaft (g) by slightly turning it to an fro and pulling.
- Carefully degrease and clean the friction face of the conical disc (h). Also remove the dust from the inside of the casing.
- Inspect the oilseal (i). It should provide a satisfactory seal, preventing the friction ring from being damaged by the oil.
- Now re-fit the hollow shaft by slowly pushing and rotating back and forth. Take care not to damage the needle bearings.

- When spring (L) is completely compressed, close the casing.

- Closing can be made easier by introducing a rod into hole B and C on the periphery of wheel (f).Once the two parts of the casing are bolted together, remove the rod (see Fig 2).

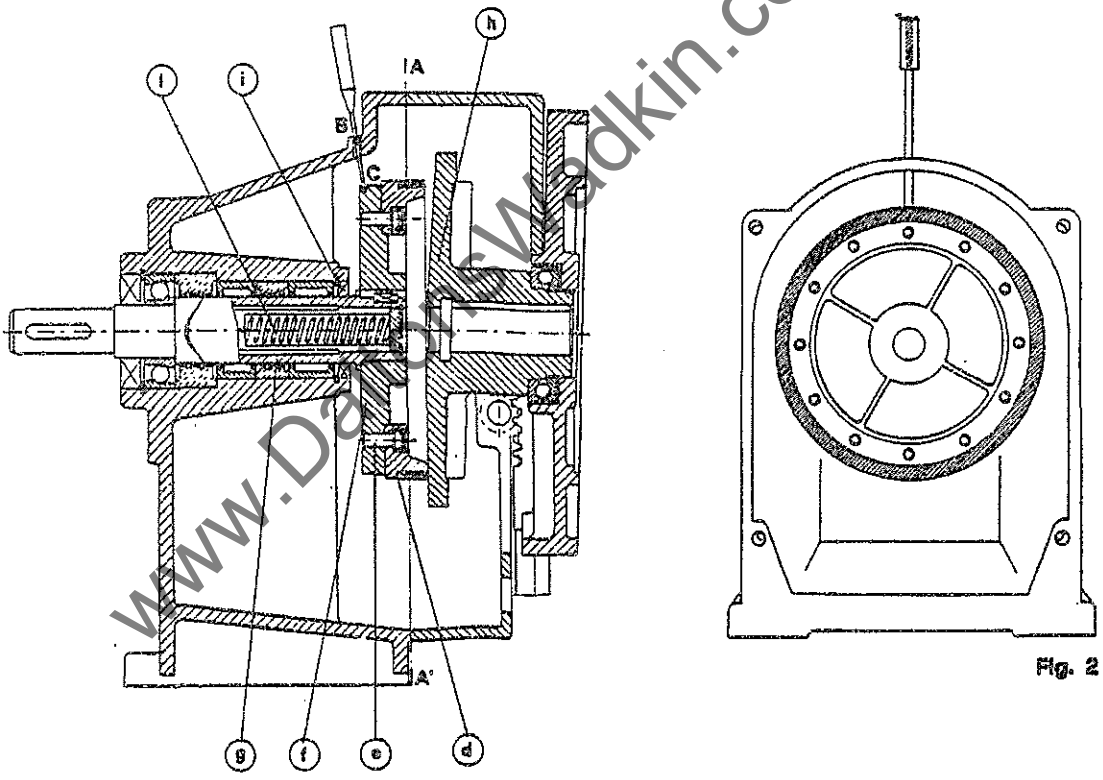


Fig. 2

Vee belt drive tensioning

Check drive belts at regular intervals (as indicated below). If the need arises, re-tension. Insufficient tension causes slipping and premature belt wear. Too much tension causes bearing wear. Tension as indicated in 'Checking/Adjustment'.

Observe the operation of the machine when first put into service. After approximately one hours effective use, check and retension the belts, to take up initial belt stretch.

In general, vee-belts will initially require adjustment at monthly intervals. It is important to check the condition and tension of the cutter spindle drive belts at more frequent intervals, depending on conditions of use, if problems relating to quality of finish are to be avoided.

Checking/adjustment is carried out as follows:-

1) Remove the drive belt cover.

2) Check belt tension. The belt should be capable of being depressed approximately 1.5 to 2 cm by application of average thumb pressure.

3) All belt drive adjustment follows the same general principle. This involves moving the drive pulley centres or motor platform, thus taking up any slack in the belts. The method used will normally be self evident.

   Re-tighten any securing features fitted.

4) Refit drive cover.

If one or more of the vee-belts become faulty, it will be necessary to replace the **complete set.** It is impossible to obtain a correctly tensioned drive, with all the belts taking an equal share of the load by mixing old and new, or different belts.

NOTE: DO NOT OVER TENSION BELTS.

Removal and Refit of drive pulleys (Fig.3)

To remove a taper-lock bush pulley:

1. Before access can be made to any belt or pulley, it will be necessary to remove the guard.

2. Slacken off the tension on the belts, then the belts can be removed.

3. Slacken off all the grub screws (1) several turns using a hexagan 'ALLEN' key. Remove one or two screws according to number of jacking holes (2).

4. Insert screws in jacking holes after oiling thread and point of grub screws or thread of cap screws, as applicable.

5. Tighten screws alternatively until bush (3) is loose on the pulley hub and the whole assembly is free on the shaft.

6. Remove pulley assembly from the shaft.

To refit a Taper-lock, bush pulley:

1. Ensure that mating taper surfaces are completely clean and free from oil or dirt. Insert bush in hub and line up screw holes.

2. Oil thread and point of grub screws, place screw loosely in threaded holes in hub of pulley.

3. Clean shaft, fit hub and bush to shaft as one unit. Locate in position, remembering that the bush will nip the shaft first and then the hub will be drawn on to the bush.

   NOTE: It is necessary to axially align drive and drive pulleys.

4. Using a hexagan Allen key, alternately tighten screws (1) until all screws are pulled up securely.

5. After the bush (3) has been tightened on to the shaft, fit the parallel key (4) this is side fitting with top clearance.

6. After drive has been running under load for short time, stop and check tightness of screws.

7. Fit empty screw holes with grease to exclude dirt.

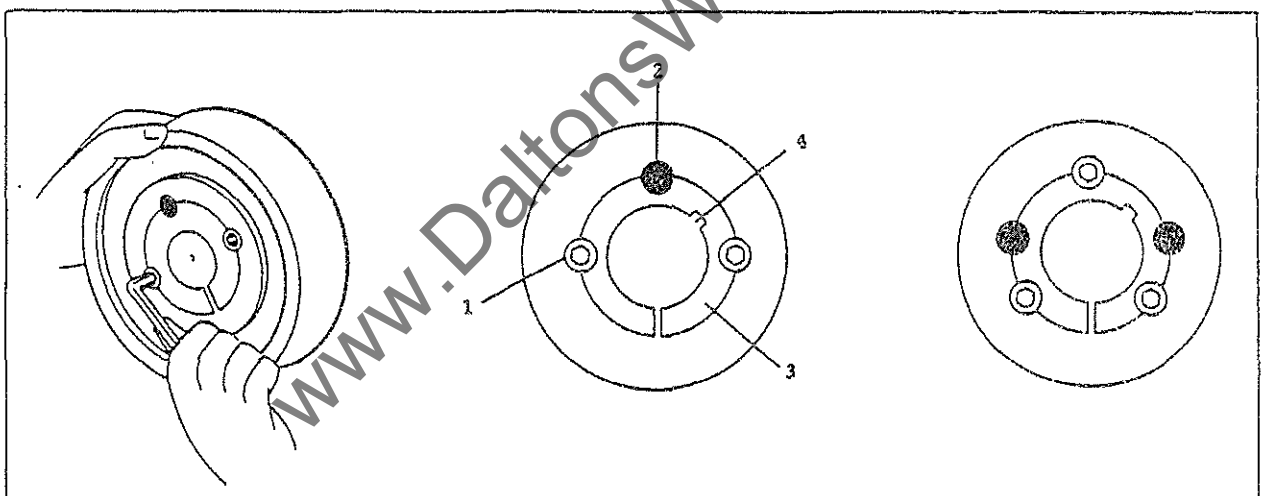


FIG 3 REMOVING A TAPER-LOCK BUSH

Air line regulator (Fig.4)

Filter maintenance.

Both free moisture and solids are removed automatically by the 40 micron filter. Drain water in sump whenever the level reaches the lower baffle. The filter element along with the transparent bowl should be washed in mild soap and water after which compressed air should be blown from the inside of the element outwards.

To remove the filter element. **SHUT AIR LINE DOWN** and exhaust secondary pressure.

1. Unscrew threaded bow.

2. Disassemble cartridge assembly by unscrewing lower baffle.

3. Remove element for cleaning as mentioned above.

4. Replace element for re-assemble.

Lubricator maintenance

The lubricator can be refilled without shutting down the air supply line. Disassemble the oil fill plug and vent the bowl pressure. Fill the bowl to visible rim with Wadkin L1 oil. **DO NOT USE OIL WITH ADHESIVE OR TACKY ADDITIVES.** Replace the fill plug and seat the bowl firmly, do not over-tighten the bowl.

To adjust the oil delivery, use a slotted screwdriver and turn the adjusting screw on the top of the lubricator.

Leaner - clockwise.
Richer - anti-clockwise.

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

25 drops per minute equals 30 g/hr.

If at any time the bowl needs to be cleaned, use only mild soap and water.

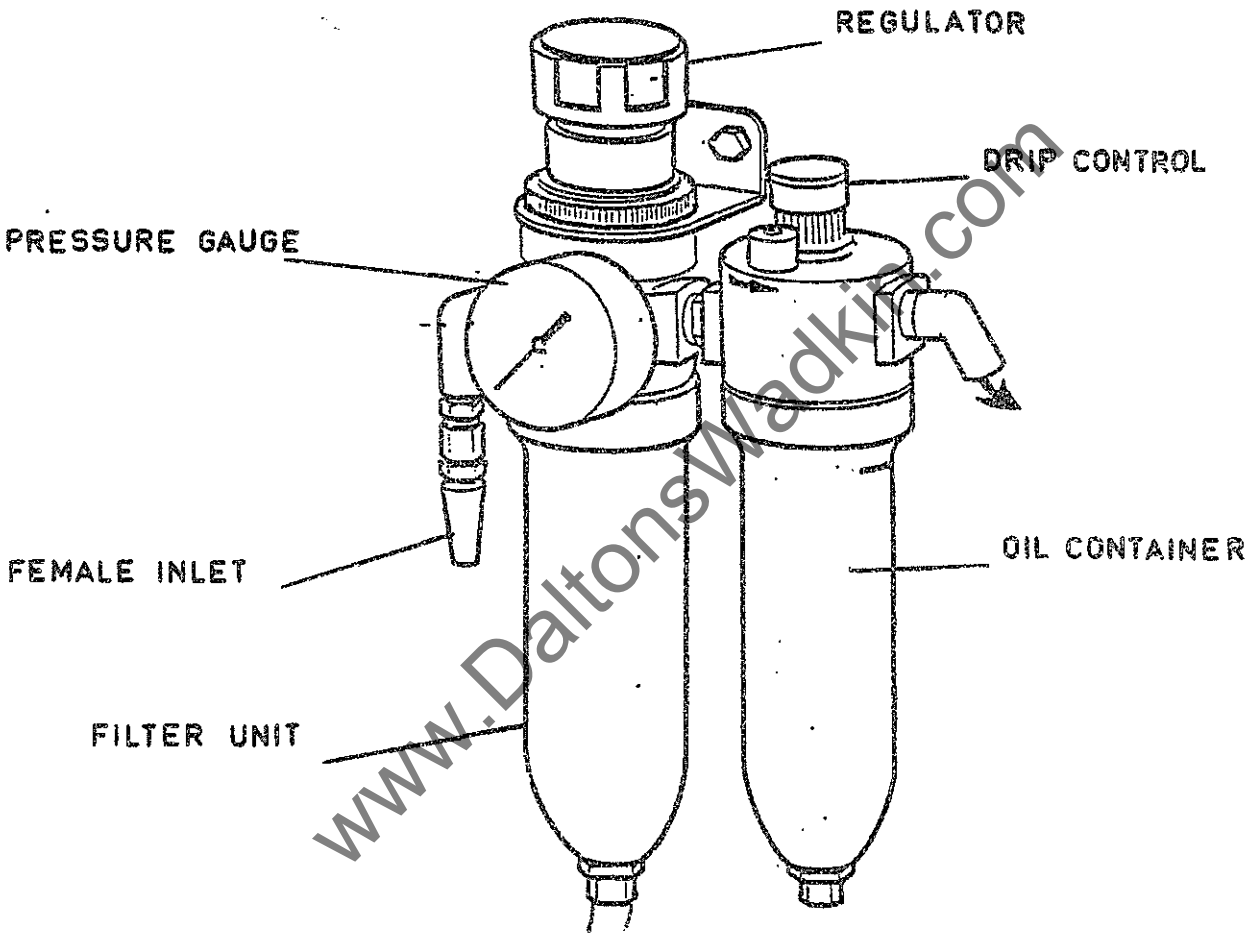


FIG. 4 AIR LINE REGULATOR/LUBRICATOR

CLEANING THE MACHINE

Machines are designed to need a minimum of maintenance. However, it is recommended that the machine be cleaned thoroughly once a week. This is essential when working on hardwood such as Sipo (Utile) or similar.

If cleaning with compressed air, take care not to direct the jet onto the spindle and moving shaft, bearing housings, etc. Clean the spindles and remove all remains of resin and grease. Do the same with the cutterblocks and machine tables and lightly lubricate.

Check that all machine parts slide easily at friction points. Lubricate as indicated in the lubricating instructions (see **Maintenance**).

Adjust the variable speed drive unit through the full range once a week to avoid the feed drive mechanism jamming.

APPROVED LUBRICANTS.							
WADKIN GRADE	CASTROL	B.P.	SHELL	MOBIL	ESSO	GULF	CALTEX
L 1	HYSPIN AWS322	ENERGOL HLP32	VITROL 32	DTE OIL LIGHT 24	NUTO 44 OR ESSTIC H44	HARMONY 43 AW	RANDO OIL HDA
L 2	ALPHA ZN 150	ENERGOL HP150 OR CS150	VITREA 150	VACTRA EXTRA HEAVY	ESSTIC 65	SERVICE 13	URSA P40
L 4	MAGNA 68	ENERGOL HP68 OR CS68	VITREA 68	VACTRA OIL HEAVY MEDIUM	ESSTIC 50	SERVICE 51	URSA P20
L 5	SPHEEROL AP3	ENERGREASE LS3	ALVANIA GREASE NO.3	MOBILPLEX GREASE NO.48	BEACON 3	GULFCROWN GREASE NO.3	REGAL STARTAK PREMIUM 3

L 1 OIL. HYDRAULIC OIL WITH ANTI-CORROSION, ANTI-OXIDATION, ANTI-WEAR, ANTI-FOAM PERFORMANCE.

L 2 OIL. GEAR OIL (VISCOSITY 150 CENTI-STOKES AT 40° C)

L 4 OIL. PLAIN MINERAL OIL (VISCOSITY 68 CENTI-STOKES AT 40° C)

L 6 GREASE. GREASE NLGI NO.3 CONSISTENCY LITHIUM BEARING GREASE.

MOTOR AND DRIVE BELT DATA

BELTS AND PULLEYS FOR SPINDLE DRIVE TO VERTICAL TENON SPINDLE											FREQUENCY 50 Hz	
MOTOR			MOTOR PULLEY		TAPER LOCK BUSH			BELTS			SPINDLE PULLEY	SPINDLE SPEED
FRAME SIZE	K.W.	H.P.	FENNER REF.	WADKIN CODE	BORE (mm)	FENNER REF.	WADKIN CODE	FENNER REF.	WADKIN CODE	QTY.	WADKIN NUMBER	R.P.M.
* F215 D132SD	7.5	10	031Z0163	K3078453	38	2012	K3077113	SPZ1500	K3078367	3	WMC 174	4000

BELTS AND PULLEYS FOR SPINDLE DRIVE TO VERTICAL TENON SPINDLE											FREQUENCY 60 Hz	
MOTOR			MOTOR PULLEY		TAPER LOCK BUSH			BELTS			SPINDLE PULLEY	SPINDLE SPEED
FRAME SIZE	K.W.	H.P.	FENNER REF.	WADKIN CODE	BORE (mm)	FENNER REF.	WADKIN CODE	FENNER REF.	WADKIN CODE	QTY.	WADKIN NUMBER	R.P.M.
* F215 D132SD	7.5	10	031Z0123	K3078217	38	1610	K3077186	SPZ1500	K3078367	3	WMC174	4000

* FLANGE SIZE

MOTOR AND DRIVE BELT DATA

BELTS AND PULLEYS FOR SPINDLE DRIVE TO 600 mm LONG TENON SPINDLE												FREQUENCY 50 Hz
MOTOR			MOTOR PULLEY		TAPER LOCK BUSH			BELTS			SPINDLE PULLEY	SPINDLE SPEED
FRAME SIZE	K.W.	H.P.	FENNER REF.	WADKIN CODE	BORE (mm)	FENNER REF.	WADKIN CODE	POLY-VEE	WADKIN CODE	QTY.	WADKIN NUMBER	R.P.M.
* D112M D132MD	11	15	-	DP 3786	-	-	-	J24-580	K3078610	1	DP3785	4000

BELTS AND PULLEYS FOR SPINDLE DRIVE TO VERTICAL PROFILE SPINDLE												FREQUENCY 50 Hz
MOTOR			MOTOR PULLEY		TAPER LOCK BUSH			BELTS			SPINDLE PULLEY	SPINDLE SPEED
FRAME SIZE	K.W.	H.P.	FENNER REF.	WADKIN CODE	BORE (mm)	FENNER REF.	WADKIN CODE	FENNER REF.	WADKIN CODE	QTY.	WADKIN NUMBER	R.P.M.
* F215 D132SD	7.5	10	0312. 0223	K3078218	38	2012	K3077113	SPZ1600	K3077271	3	WMC 174	6000
* F215 D132MD	11	15	0312. 0223	K3078218	38	2012	K3077113	SPZ1600	K3077271	3	WMC 174	6000

* FLANGE SIZE

MOTOR AND DRIVE BELT DATA

BELTS AND PULLEYS FOR SPINDLE DRIVE TO VERTICAL PROFILE SPINDLE												FREQUENCY 60 Hz
MOTOR			MOTOR PULLEY		TAPER LOCK BUSH			BELTS			SPINDLE PULLEY	SPINDLE SPEED
FRAME SIZE	K.W.	H.P.	FENNER REF.	WADKIN CODE	BORE (mm)	FENNER REF.	WADKIN CODE	FENNER REF.	WADKIN CODE	QTY.	WADKIN NUMBER	R.P.M.
* F215 D132SD	7.5	10	031Z. 0203	K3078272	38	2012	K3077113	SPZ1600	K3077271	3	WMC 174	6000
* F215 D132MD	11	15	031Z. 023	K3078272	38	2012	K3077113	SPZ1600	K3077271	3	WMC 174	6000

* FLANGE SIZE

BELTS AND PULLEYS FOR SPINDLE DRIVE TO SHORT VERTICAL PROFILE SPINDLE												FREQUENCY 50 Hz
MOTOR			MOTOR PULLEY		TAPER LOCK BUSH			BELTS			SPINDLE PULLEY	SPINDLE SPEED
FRAME SIZE	K.W.	H.P.	FENNER REF.	WADKIN CODE	BORE (mm)	FENNER REF.	WADKIN CODE	POLY-VEE	WADKIN CODE	QTY.	WADKIN NUMBER	R.P.M.
* D100LC	3.7	5	-	WMC1015	-	-	-	260-J10	K3078226	1	DP2294	4500/6000

* INTERMITTENT RATED S6 - 40%

MOTOR AND DRIVE BELT DATA

BELTS AND PULLEYS FOR SPINDLE DRIVE TO TOP HORIZONTAL AUX.HEAD											FREQUENCY 50 Hz	
MOTOR			MOTOR PULLEY		TAPER LOCK BUSH			BELTS			SPINDLE PULLEY	SPINDLE SPEED
FRAME SIZE	K.W.	H.P.	FENNER REF.	WADKIN CODE	BORE (mm)	FENNER REF.	WADKIN CODE	POLY-VEE	WADKIN CODE	QTY.	WADKIN NUMBER	R.P.M.
* D100 D90C	2.2	3	-	1.WMC 1016 2.WMC 880	-	-	-	260-J10	K3078226	1	DP2294	4500/6000

1. FLANGE MOTOR MOUNTED TO REAR
2. FLANGE MOTOR MOUNTED TO FRONT
* FACE MOUNTING

BELTS AND PULLEYS FOR SPINDLE DRIVE TO TOP HORIZONTAL AUX. HEAD											FREQUENCY 60 Hz	
MOTOR			MOTOR PULLEY		TAPER LOCK BUSH			BELTS			SPINDLE PULLEY	SPINDLE SPEED
FRAME SIZE	K.W.	H.P.	FENNER REF.	WADKIN CODE	BORE (mm)	FENNER REF.	WADKIN CODE	POLY-VEE	WADKIN CODE	QTY.	WADKIN NUMBER	R.P.M.
* D100 D90C	2.2	3	-	1.WMC 1016 2.WMC 880	-	-	-	260-J10	K3078226	1	DL286	4500/6000

MOTOR AND DRIVE BELT DATA

BELTS AND PULLEYS FOR SPINDLE DRIVE TO SHORT VERTICAL PROFILE SPINDLE											FREQUENCY 60 Hz	
MOTOR			MOTOR PULLEY		TAPER LOCK BUSH			BELTS			SPINDLE PULLEY	SPINDLE SPEED
FRAME SIZE	K.W.	H.P.	FENNER REF.	WADKIN CODE	BORE (mm)	FENNER REF.	WADKIN CODE	POLY-VEE	WADKIN CODE	QTY.	WADKIN NUMBER	R.P.M.
* D100LC	3.7	5	-	WMC1015	-	-	-	260-J10	K3078226	1	DL286	4500/6000

* INTERMITTENT RATED S6 - 40%

MOTOR AND DRIVE BELT DATA

BELTS AND PULLEYS FOR SPINDLE DRIVE TO BOTTOM HORIZONTAL AUX. HEAD.											FREQUENCY 50 Hz	
MOTOR			MOTOR PULLEY		TAPER LOCK BUSH			BELTS			SPINDLE PULLEY	SPINDLE SPEED
FRAME SIZE	K.W.	H.P.	FENNER REF.	WADKIN CODE	BORE (mm)	FENNER REF.	WADKIN CODE	POLY-VEE	WADKIN CODE	QTY.	WADKIN NUMBER	R.P.M.
* D100LC	3.7	5	-	1.WMC 1015 2.DP2293	-	-	-	260-J10	K3078226	1	DP2294	4500/6000

1. FLANGE MOTOR MOUNTED TO REAR
2. FLANGE MOTOR MOUNTED TO FRONT
* INTERMITTENT RATED S6 - 40%

BELTS AND PULLEYS FOR SPINDLE DRIVE TO BOTTOM HORIZONTAL AUX. HEAD.											FREQUENCY 60 Hz	
MOTOR			MOTOR PULLEY		TAPER LOCK BUSH			BELTS			SPINDLE PULLEY	SPINDLE SPEED
FRAME SIZE	K.W.	H.P.	FENNER REF.	WADKIN CODE	BORE (mm)	FENNER REF.	WADKIN CODE	POLY-VEE	WADKIN CODE	QTY.	WADKIN NUMBER	R.P.M.
* D100LC	3.7	5	-	1.WMC 1015 2 DP2203	-	-	-	260-J10	K3078226	1	DL286	4500/6000

MOTOR AND DRIVE BELT DATA

BELTS AND PULLEYS FOR SPINDLE DRIVE TO TOP HORIZONTAL PLANING HEAD. FREQUENCY 50 Hz.

	MOTOR			MOTOR PULLEY		TAPER LOCK BUSH			BELTS			SPINDLE PULLEY	SPINDLE SPEED
	FRAME SIZE	K.W.	H.P.	FENNER REF.	WADKIN CODE	BORE (mm)	FENNER REF.	WADKIN CODE	FENNER REF.	WADKIN CODE	QTY.	WADKIN NUMBER	R.P.M.
*	F215 D112MD	4.0	5.5	031Z. 0222	K3078237	28	2012	K3077114	SPZ850	K3078213	2	GA1638	6000 or 7500

BELTS AND PULLEYS FOR SPINDLE DRIVE TO BOTTOM HORZ. PLANING HEAD. FREQUENCY 50 Hz.

	MOTOR			MOTOR PULLEY		TAPER LOCK BUSH			BELTS			SPINDLE PULLEY	SPINDLE SPEED
	FRAME SIZE	K.W.	H.P.	FENNER REF.	WADKIN CODE	BORE (mm)	FENNER REF.	WADKIN CODE	FENNER REF.	WADKIN CODE	QTY.	WADKIN NUMBER	R.P.M.
*	F215 D112MD	4.0	5.5	031Z. 0222	K3078237	28	2012	K3077114	SPZ 850	K3078213	2	GA 1638	6000 or 7500

* FLANGE SIZE

MOTOR AND DRIVE BELT DATA

BELT AND PULLEY FOR TENON BEAM												FREQUENCY 50 Hz
MOTOR			MOTOR PULLEY		MOTOR TAPER LOCK BUSH			BELTS			BALL SCREW PULLEY	
FRAME SIZE	K.W.	H.P.	POLY-VEE	WADKIN CODE	BORE (mm)	POLY-VEE	WADKIN CODE	POLY-VEE	WADKIN CODE	QTY.	POLY-VEE	WADKIN REF.
D90	2.2	3	8J56 - 1108	K3078618	24	1108	K3078619	280-J8	K3078616	1	8J140-1610	K3078617

BALL SCREW LOCK BUSH			TABLE FEED SPEED									
BORE (mm)	POLY-VEE	WADKIN REF	FORWARD MOVEMENT	REVERSE MOVEMENT								
14	1610	K3078620	2-15m/min	20m/min								

FAULT FINDING

Mechanical Faults

Apart from mechanical failure (breakage) the majority of mechanical faults can be attributed to incorrectly tensioned belts; the setting of cutterblocks and cutter-blades; items working loose due to vibration - failure to set or tighten correctly; wrong speed setting; or misuse.

Therefore to get the best performance it is essential that the machine is set-up and used correctly, many mechanical faults can therefore be avoided.

Elimination of Vibration

It is important to check condition and tension of the cutter spindle drive belts regularly (see vee belt tensioning).

It is also important that the cutters are evenly ground and set to run true in the cutterblock, the assembled cutterblock should be statically balanced before fitting to the spindle.

In the case of high speed machines it is highly recommended that cutterblocks be dynamically balanced.

Electrical Faults

FAULT **The machine does not run when any 'START' button is operated.**

Diagnosis

a. Disconnect (isolator) switch has not been closed.
b. Main fuse or control circuit fuse has blown
c. Overload relay has tripped

Remedial Action

a. Check and close if needed
b. Replace fuse
c. Reset relay. Check reason for trip

FAULT **A motor does not start - loud humming sound**

Diagnosis

a. An open circuit in at least two 'line leads' of the motor
b. The fuses of the motor have blown

Remedial Action

a. Check circuit and rectify
b. Replace fuse

FAULT **An air break magnetic contactor does not operate.**

Diagnosis

a. The contacts are burned and make improper contact
b. Broken connection wire
c. An overload relay has tripped
d. A fuse has blown

Remedial Action

a. Clean or replace contacts
b. Remake connections
c. Reset relay. Check reason for overload
d. Replace fuse

FAULT **A Star/Delta connected motor does not operate when the contactor is connected in star**

Remedial Action

Check/Remedy the symptoms outlined in above.

FAULT **When a motor is started, the fuses blow and the overload relay trips.**

Diagnosis

a. The motor does not run freely
b. There is a short circuit in the wiring mains
c. The motor windings or winding are/is earthed.

Remedial Action

a. Check that the motor is free running
b. Check the circuit wiring
c. Check the windings in turn for electrical continuity and also earth faults with a 'Megger'.

FAULT **The motor overheats when running 'light' (unloaded)**

Diagnosis

a. The motor windings are connected in delta instead of star
b. The mains voltage is too high
c. The ventilating air ducts of the motor frame have become blocked with dust or chips, the cooling air passage has become impeded, or the cooling fan (if fitted) is not functioning correctly.

Remedial Action

a. Check connections
b. Check mains voltage and correct
c. Clean airways. Check fan operation

FAULT **Motor overheats while working**

Diagnosis

a. The motor is overloading
b. The motor is running under single phase conditions

Remedial Action

a. Check reason and correct
b. Check electrical circuits

FAULT **The motor makes an abnormal noise**

Diagnosis

a. The cause can be of a mechanical or electrical nature
b. If the noise is caused by an electrical fault, the noise will disappear when power is switched off
c. If the noise is caused by a mechanical fault, the noise will diminish as speed of rotation decreases

Remedial Action

a. Establish mechanical or electrical origin
b.c. Check symptoms. Deduce by elimination, locate position and nature of fault

FAULT **The Air Break Magnetic Starter is noisy**

Diagnosis

a. The mains voltage is too low
b. The surfaces of the 'fixed' and 'moving' contacts are dirty.

Remedial Action

a. Check mains voltage and correct
b. Clean or replace contacts

FAULT **The air break magnetic starter remains 'closed' after a STOP button has been operated**

Diagnosis

a. The contactor 'fixed' and 'moving' contacts have welded together following a short circuit

Remedial Action

a. Check and remove cause of the short circuit. Replace the damaged contacts. It may be necesary to replace the complete contactor if too damaged.

FAULT **A fault condition arises on a motor and the overload current relay fails to operate.**

Diagnosis

a. The overload relay may be incorrectly rated - it should correspond to the normal full load current of the motor (given on the motor nameplate) for Direct-on-Line starting
b. If the overload relay is connected in a Star/Delta starter, the rating of the overload should be the normal full load current of the motor (given on the motor nameplate) multiplied by 1/1.73(0.58)

Remedial Action

a. Replace with correctly rated relay

FAULT **A Spindle stops, but the motor still runs**

Diagnosis

a. The drive belts are loose, broken, or have come off

Remedial Action

a. Retension or replace belts

The foregoing observations are of a general nature and intended to be of assistance to avoid the incidence of breakdown. They do not preclude the user from calling a qualified electrician. In the case of an electrical fault or breakdown, in the interest of personal safety, it is always advisable to call a qualified electrician if the fault repeats.

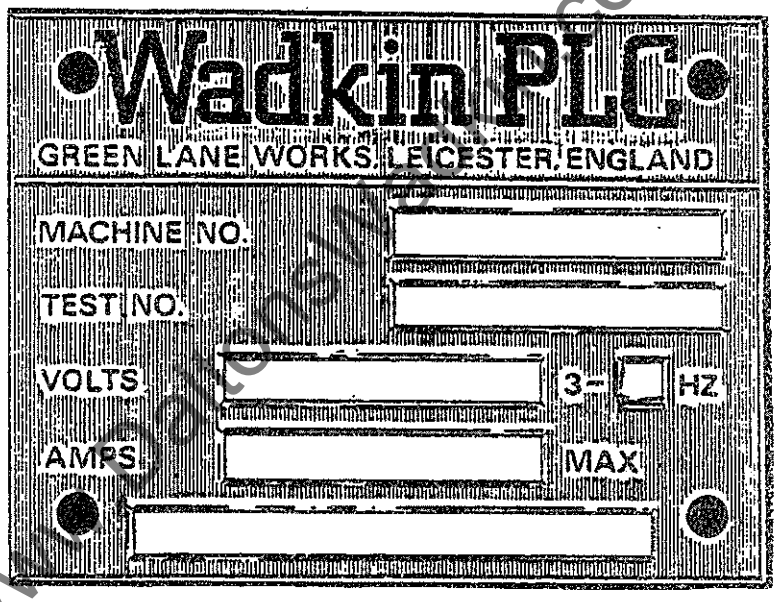
SECTION 5

ILLUSTRATED PARTS LIST

ALWAYS QUOTE MODEL AND MACHINE NUMBER WHEN ORDERING SPARES

SPARE PARTS

Should spare parts be required due to breakage or wear, full particulars including machine and test number must be given. This information is on the nameplate attached to the front of the machine and should be forwarded to the Service Manager.



SAMPLE TYPE ORDER

MACHINE
MACHINE NO:
TEST NO:
PARTS REQUIRED e.g.

1 - M10 x 50mm long screwed stud
1 - M10 size bright mild steel washer.
1 - Raising screw.

WADKIN PLC, GREEN LANE WORKS, LEICESTER, LE5 4PF, ENGLAND.

Telephone: 0533 769111
Cables: Woodworker Leicester.
Telex: 34646 (Wadkin G)
Fax: 0533 742310

ILLUSTRATED PARTS LIST

BACKING PIECE AND TURRET SHAFT

Ref.No.	Description	Quantity
1	Turret stop shaft	1
2	Bearing spacer	1
3	Bearing	2
4	Internal circlip Ø42	1
5	External circlip Ø20	1
6	Square headed dowel	1
7	Drill bush	1
8	Backing plate clamp	1
9	Backing ring	1
10	Backing piece	1
11	Pan head screw M5 x 10LG	1
12	Oval link chain	1
13	Hexagonn capscrew M8 x 30LG	1

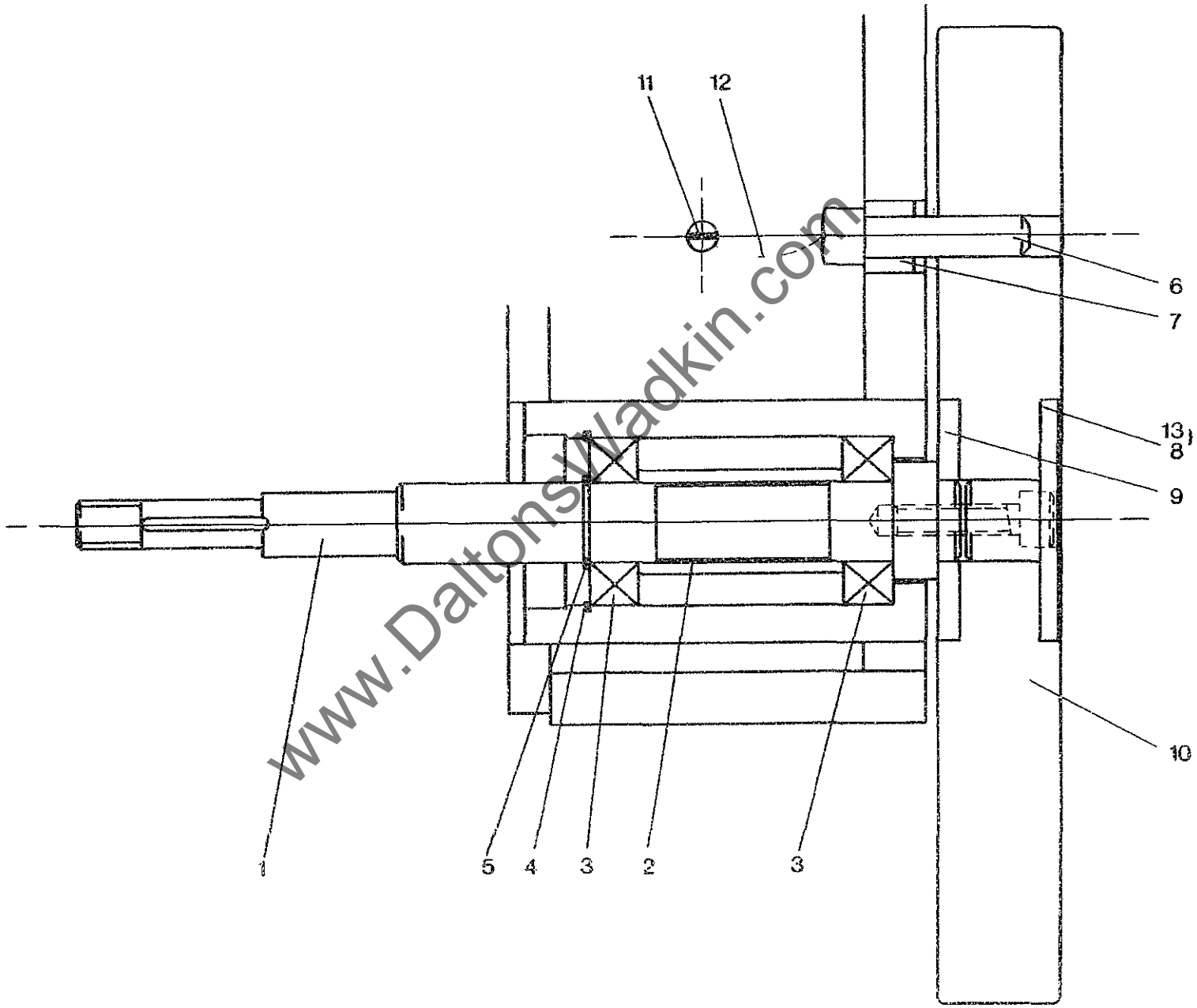


FIG.1 BACKING PIECE & TURRET SHAFT

ILLUSTRATED PARTS LIST

BACKING PIECE TURRET

Ref.No.	Description	Quantity
1	Turret mounting plate assy.	1
2	Clutch arm	1
3	Clutch arm key	1
4	Hexagon capscrew M4 x 8LG	1
5	Brass pad	1
6	Brake housing	1
7	Hexagon capscrew M6 x 30LG	2
8	Proximity switch target	1
9	Turret stop ring	1
10	Grub screw M8 x 25LG	2
11	Turret stop shaft	1
12	Proximity switch	6
13	Hexagon capscrew M6 x 20LG	4
14	Steel ball Ø8	2
15	Compression spring	2
16	Bush 16 x 20 x 25	1
17	Detent plate	1
18	Stieder clutch	1
19	Hexagon full nut M12	1
20	Cover turret mounting plate	1
21	Cover spacer	2
22	Screw assy.	1
23	Hexagon full nut M8	2
24	Pneumatic cylinder	1
25	Cylinder clevis	1
26	Proximity switch	2
27	Flow control valve	2
28	Festo straight connection	2
29	Straight dowel Ø6 x 20LG	2
30	Parallel Key 4 x 4 x 32LG	1
31	Hexagon full nut M8	1
32	Grub screw M8 x 20LG	1
33	Compression spring	1
34	Hexagon capscrew M6 x 65LG	2

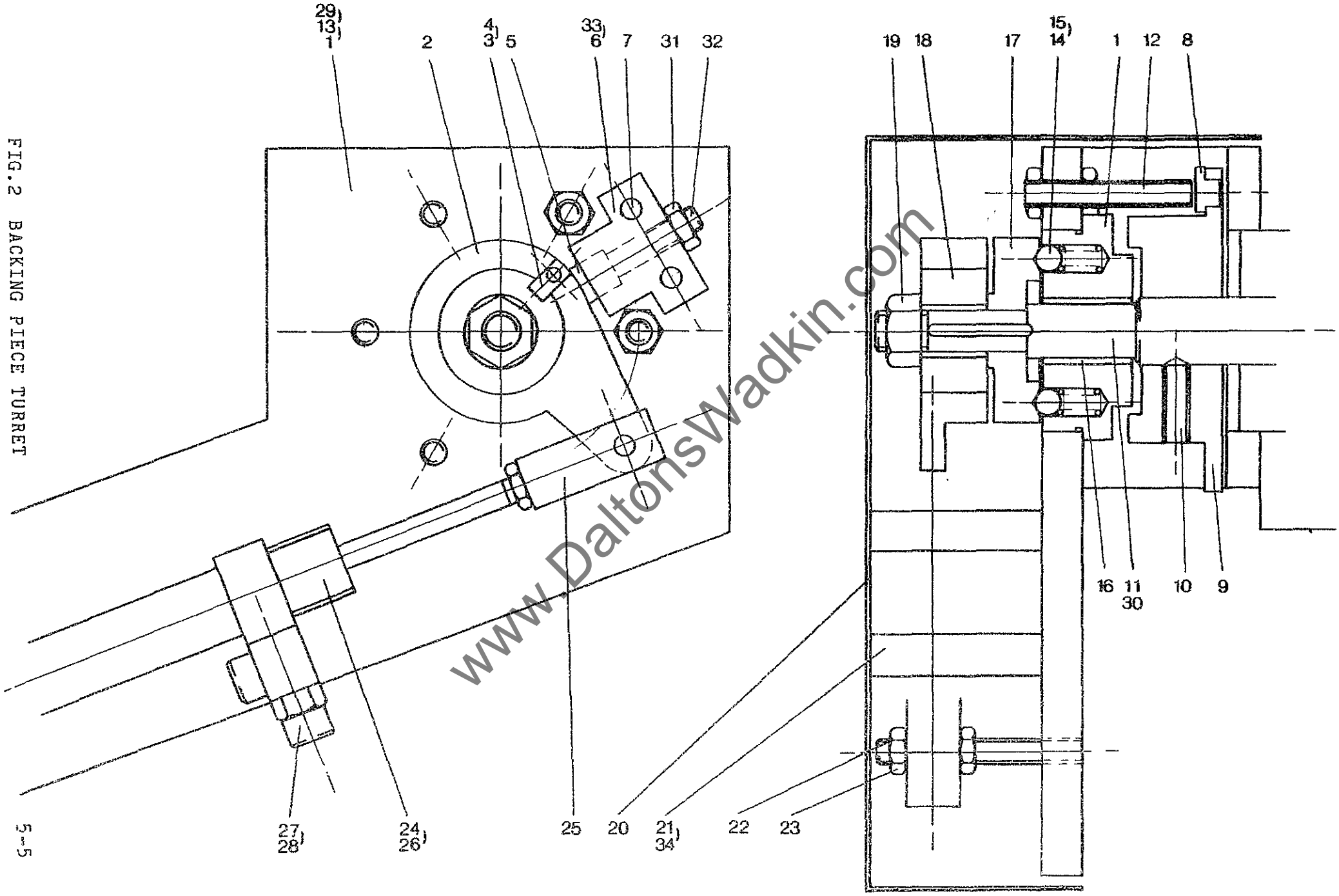


FIG.2 BACKING PIECE TURRET

ILLUSTRATED PARTS LIST

HOGGING SAW - IN/OUT

Ref.No.	Description	Quantity
1	Lead screw	1
2	Lead screw nut housing	1
3	Spacer - lead screw nut housing	2
4	Bearing pot	1
5	Extension shaft (short)	1
6	Digital indicator (high speed)	1
7	Spring washer Ø10	4
8	Horizontal adjustment nut	1
9	Tension pin Ø8 x 50LG	1
10	Notch nut M20 x 1.5 pitch	1
11	Tab lock washer Ø20	1
12	Bush 25 x 20 x 25	1
13	Thrust washer	4
14	Thrust bearing	2
15	Plain washer Ø10	4
16	Full nut M10	4
17	Hexagon head screws M10 x 65LG	4
18	Tension pin Ø4 x 20LG	1
19	Dowel pin Ø10 x 60LG	2
20	Hexagon head screw M6 x 20LG	2
21	Adaptor plate	1
22	Hexagon head screw M12 x 25LG	2

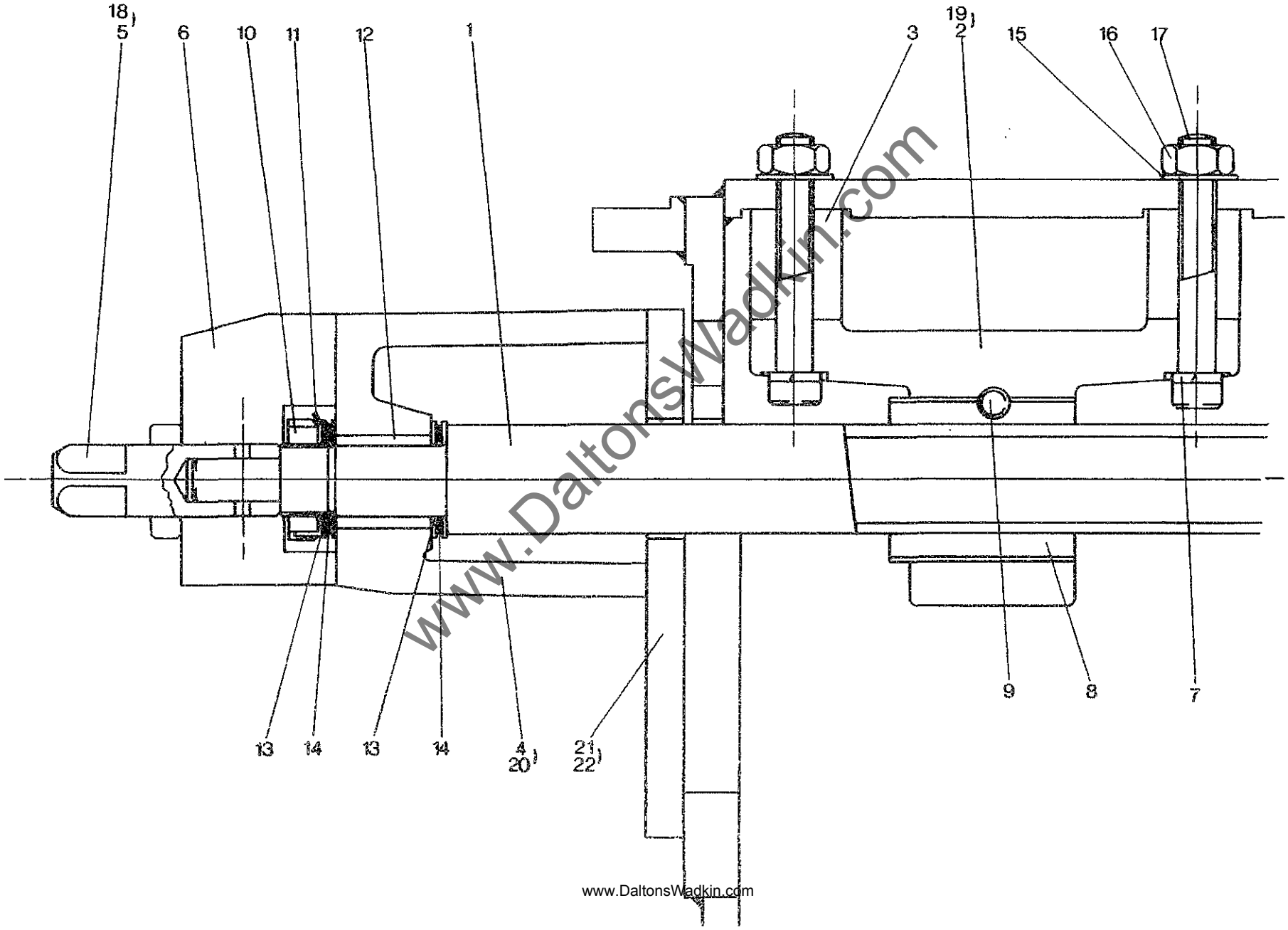


FIG. 3 HOGGING SAW - IN/OUT

ILLUSTRATED PARTS LIST

TENON BEAM - BALLSCREW

Ref.No.	Description	Quantity
1	Ballscrew	1
2	Bearing housing	2
3	Ballnut housing	1
4	Spacer	2
5	Thrust plate	2
6	Combined bearing	2
7	Bearing and seal	2
8	Inner ring	4
9	Sealing ring 35 x 42 x 4	2
10	Poly-vee pulley	1
11	Taper bush 14mm Bore	1
12	Key 5 x 5 x 32	1
13	Poly-vee belt	1
14	Plain washer ø6	1
15	Hexagon capscrew M6 x 20LG	1
16	Square flanged ballscrew nut	1
17	Hexagon capscrew M8 x 35LG	4
18	Hexagon screw M12 x 35LG	2
19	Spring washer ø12	2
20	Hexagon half nut M12	1
21	Hexagon full nut M12	1
22	Plain washer ø12	1
23	Plain dowels ø12 x 40LG	2
24	Hexagon screw M12 x 45LG	4
25	Spring washer ø12	4

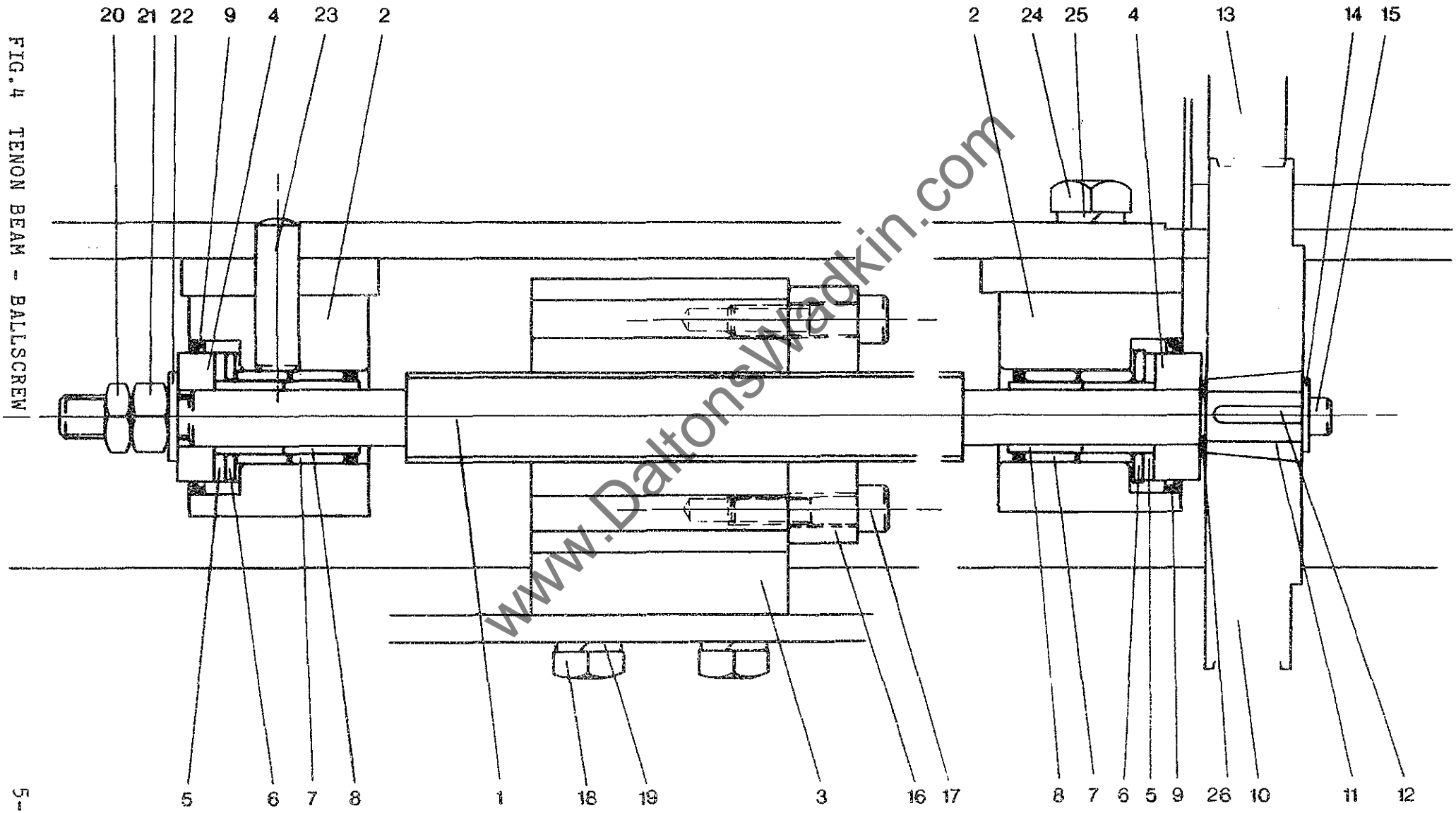


FIG. 4 TENON BEAM - BALLSCREW

ILLUSTRATED PARTS LIST

600mm TENON SPINDLE - MOUNTING

Ref.No.	Description	Quantity
1	Cutter Spindle	1
2	End cap	1
3	Bearing Klubergreased	2
4	Bearing housing	1
5	Bearing spacer	1
6	Hexagon capscrew M6 x 20LG	6
7	Disc spring	1
8	Poly-vee belt	1
9	Hexagon screw M12 x 40LG	6
10	Plain washer Ø12	6
11	Plain washer Ø12	1
12	Spring washer Ø12	1
13	Hexagon screw M12 x 45LG	1
14	Pulley locking collar	1
15	Spindle pulley	1

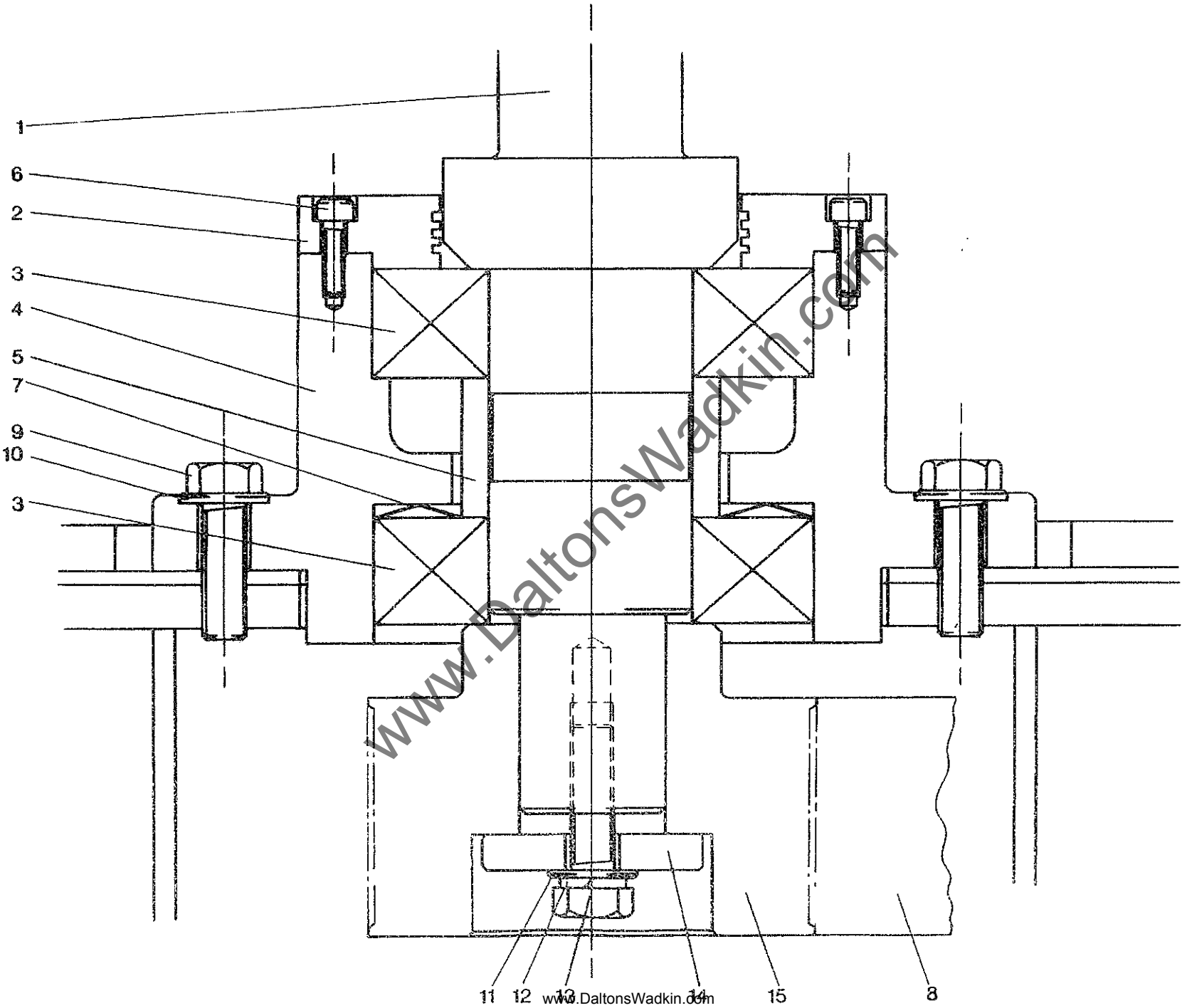


FIG. 5 600mm TENON SPINDLE - MOUNTING

ILLUSTRATED PARTS LIST

600mm TENON SPINDLE (HYDRO-GRIP)

Ref.No.	Description	Quantity
1	End cap for outboard bearing	2
2	Protective ring	1
3	Drive key for outboard bearing	1
4	Hexagon capscrew M4 x 4LG	1
5	Hexagon capscrew M6 x 16LG	6
6	Shim	2
7	Bearing	1
8	Bearing spacer	2
9	Locknut for outboard bearing	1
10	Hydro-grip outboard bearing	1
11	Spindle locknut	1
12	Cutter spindle	1
13	Top steady plate assy.	1

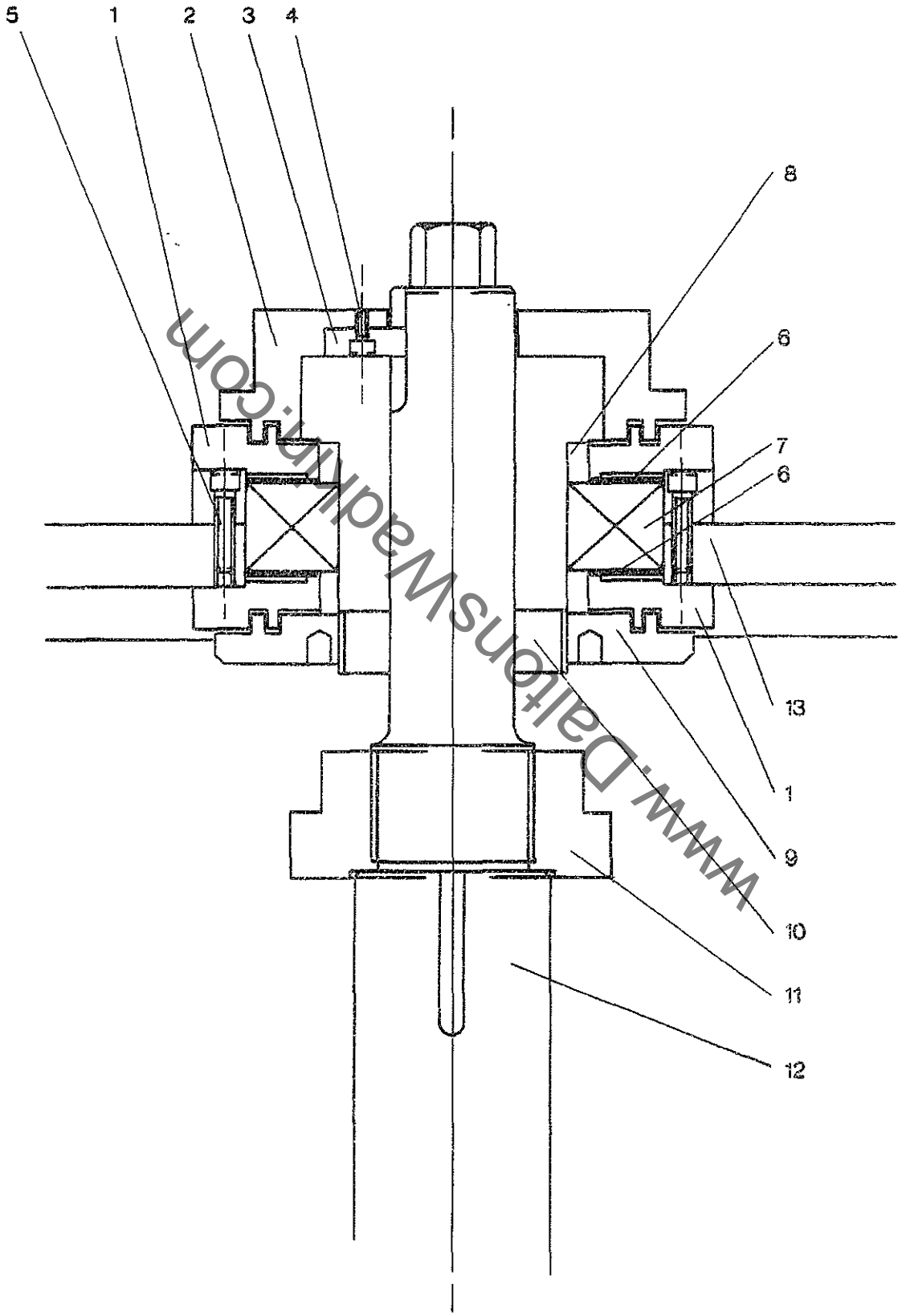


FIG.6 600mm TENON SPINDLE (HYDRO-GRIP)

ILLUSTRATED PARTS LIST

ELEC/MECH DRIVE ASSEMBLY

Ref.No.	Description	Quantity
1	Encoder plate cover	1
2	Hexagon capscrew M6 x 35LG	2
3	Hexagon capscrew M6 x 60LG	1
4	Encoder mounting plate	1
5	Hexagon capscrew M5 x 12LG	2
6	Encoder adaptor	1
7	C'SK. screw M4 x 12LG	3
8	Encoder	1
9	Encoder pulley	1
10	Grubscrew M4 x 4LG	1
11	Timing belt	1
12	Gearbox pulley	1
13	Grub screw M4 x 6LG	1
14	Drive adaptor	1
15	Siko-position indicator	1
16	Gear box/motor	1
17	Key 4 x 4 x 20LG	1
18	Coupling	1
19	Motor adaptor	1
20	Hexagon capscrew M5 x 25LG	4
21	Grub screw M6 x 6LG	1
22	Grub screw M6 x 8LG	1

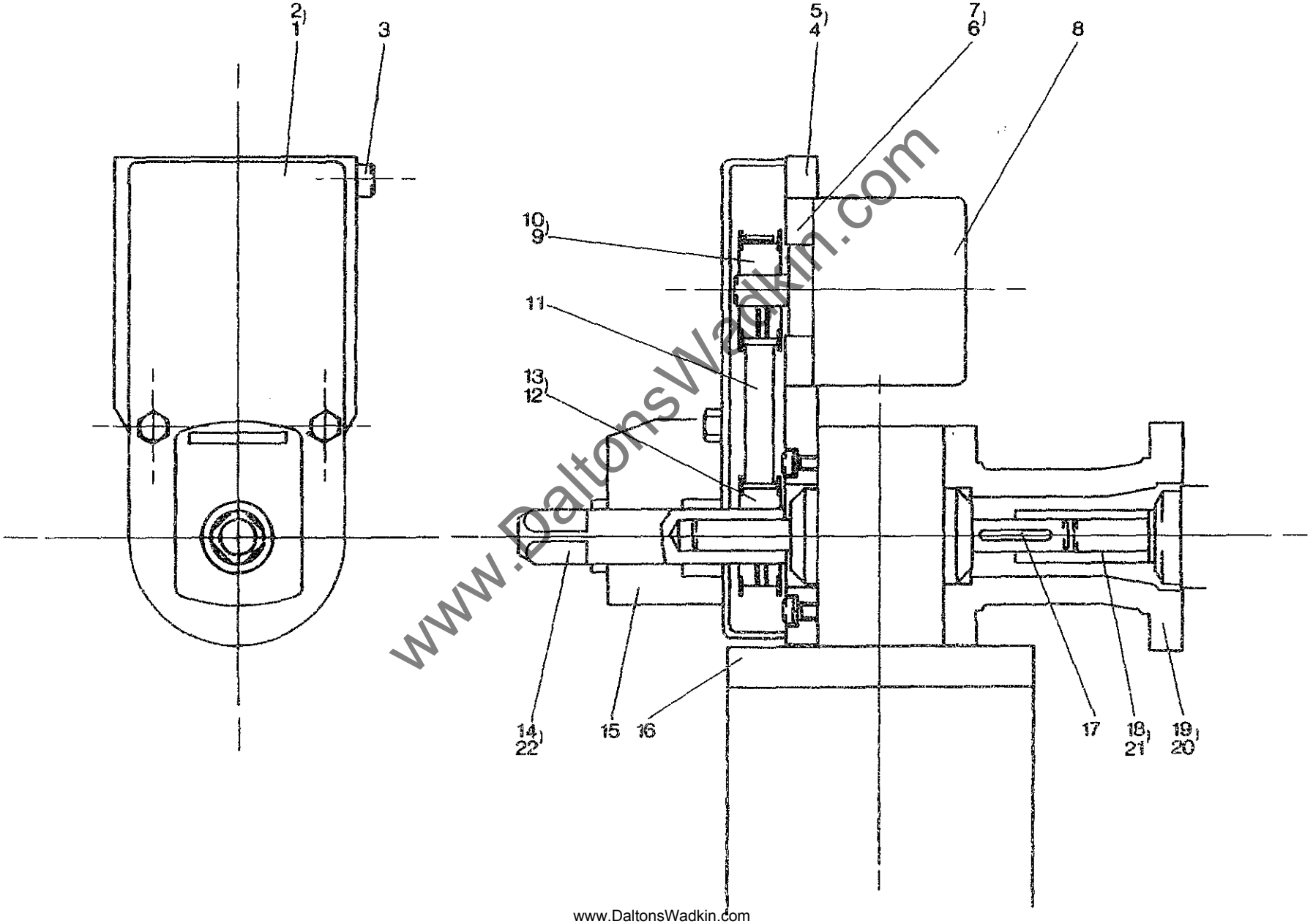


FIG.7 ELEC/MECH DRIVE ASSY.

ILLUSTRATED PARTS LIST

BRAKE FOR VERTICAL SPINDLE

Ref.No.	Description	Quantity
1	Brake shoe and pad assembly	1
2	Brake cylinder	1
3	Cylinder bracket	1
4	Hexagon cap screw M6 x 20LG	2
5	Stud M10 x 70LG	1
6	Brake shoe spacer	1
7	Plain washer Ø10	1
8	Hexagon self locking nut M10	1
9	Festo elbow GCK-1/4-PK-4-KU	1

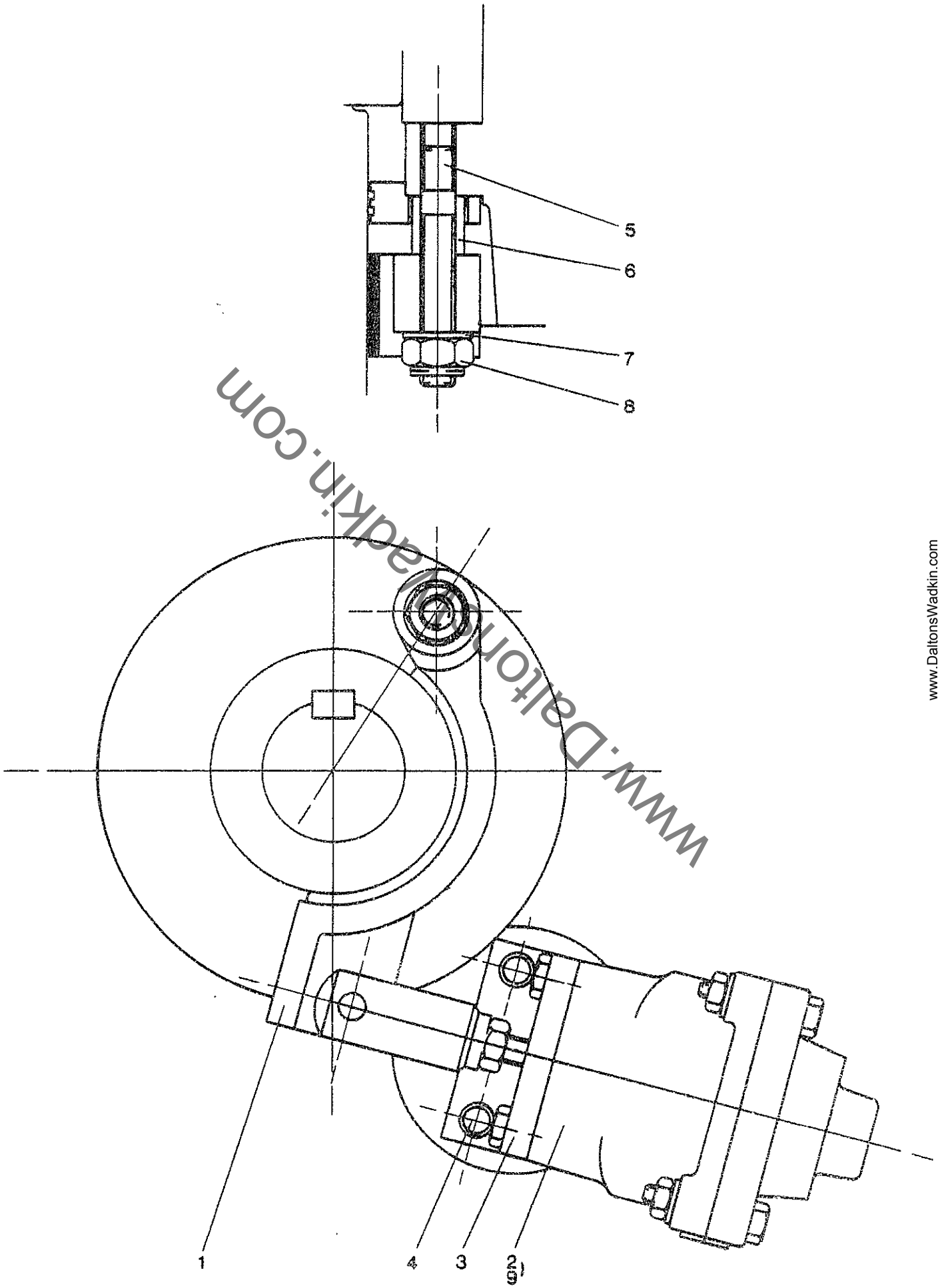


FIG.8 BRAKE FOR VERTICAL SPINDLE

ILLUSTRATED PARTS LIST

RISE AND FALL G/BOX ASSY.

Ref.No.	Description	Quantity
1	Gear box	1
2	End cap	2
3	Rise and fall worm gear and spline shaft	1
4	Worm wheel	1
5	Thrust bearing	4
6	Shim washer 47 O/D x 37 I/D	2
7	Hexagon lock nut M16	1
8	Hexagon head capscrew M5 x 16LG	6
9	Hexagon head capscrew M10 x 40LG	4
10	Tension pin Ø10 x 26LG	2

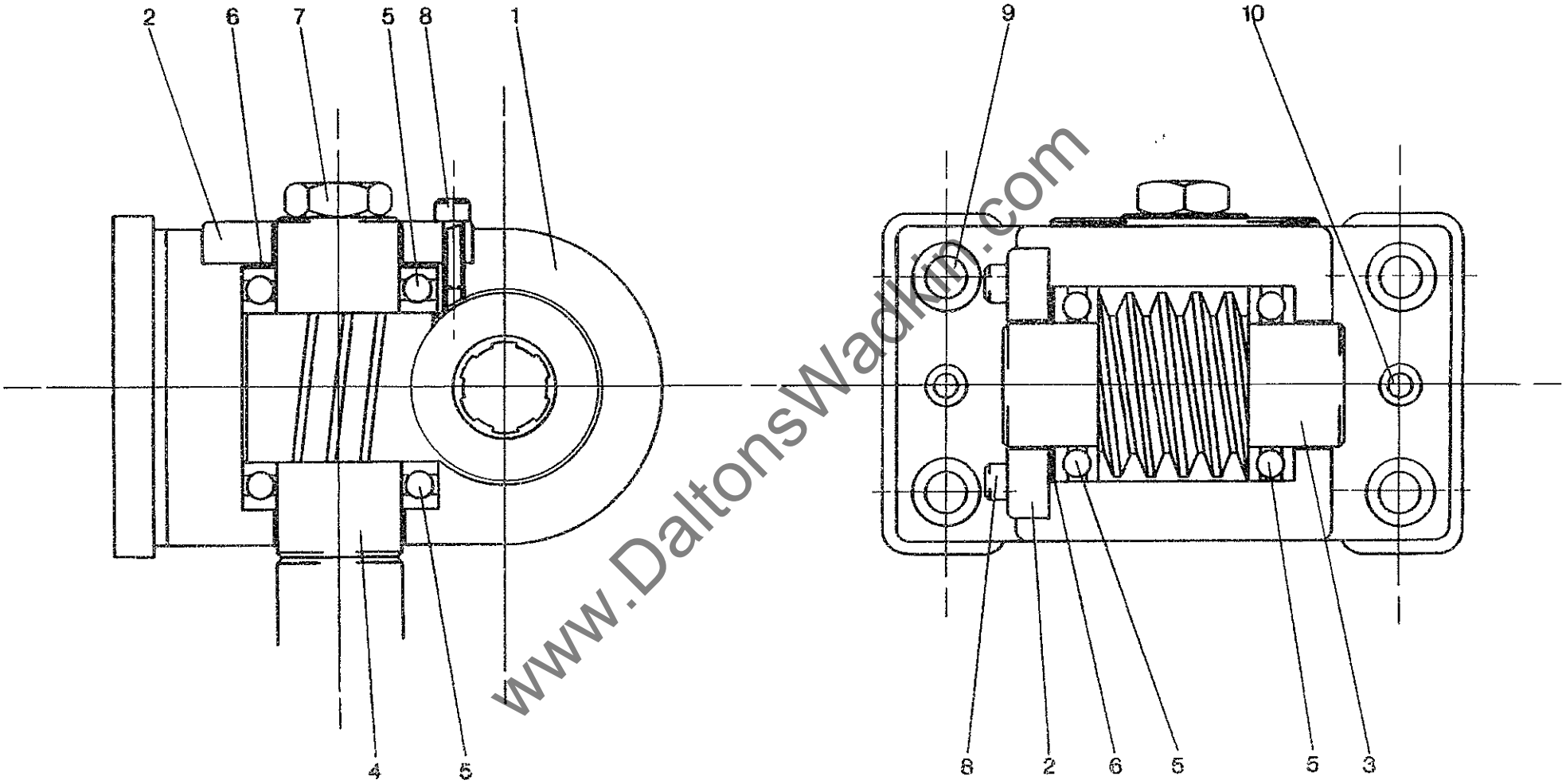


FIG. 9 RISE & FALL G/BOX ASSY.

ILLUSTRATED PARTS LIST

VERTICAL SPINDLE - IM/OUT

Ref.No.	Description	Quantity
1	Spline shaft	1
2	Digital indicator (Highspeed)	1
3	External circlip ø20	2
4	Thrust washer	2
5	Thrust Bearing	2
6	Thrust washer	2
7	Shim washer 32 x 20 x 2	1
8	Bush 25 x 20 x 25	1
9	Bearing pot	1
10	Hexagon capscrew M6 x 20LG	3

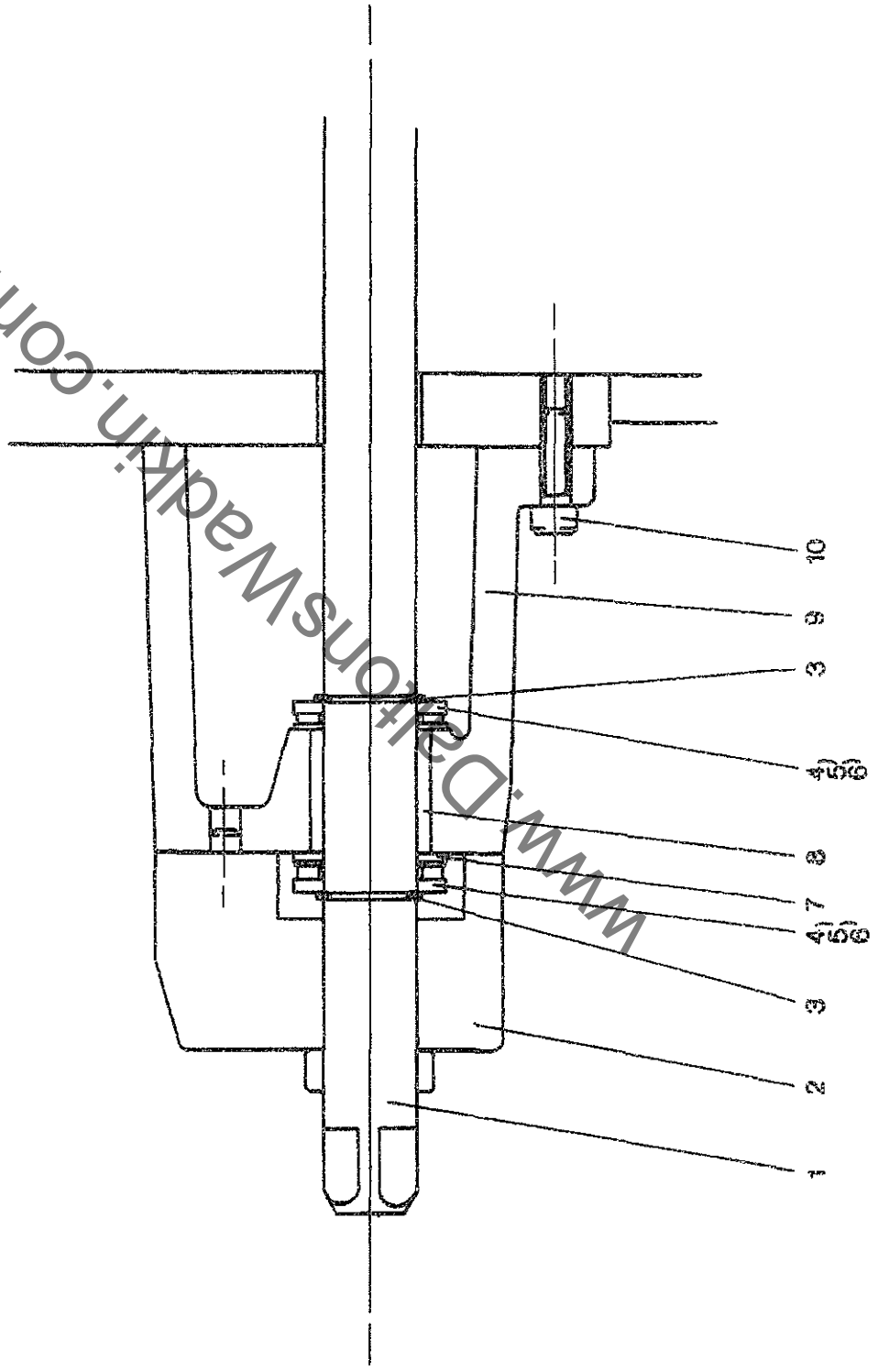


FIG. 10 VERTICAL SPINDLE - IN/OUT

ILLUSTRATED PARTS LIST

CAMS FOR RISE AND FALL ON VERTICAL SPINDLES

Ref.No.	Description	Quantity
1	Block - micro switch cams	1
2	Plate	1
3	Vertical datum cam	1
4	Vertical over-run cam	1
5	Hexagon screw M6 x 35LG	2
6	Hexagon lock nut M6	2
7	Hexagon cap screw M6 x 55LG	2
8	Hexagon screw M6 x 12LG	2
9	Large plain washer Ø6	2
10	Micro-switch	3

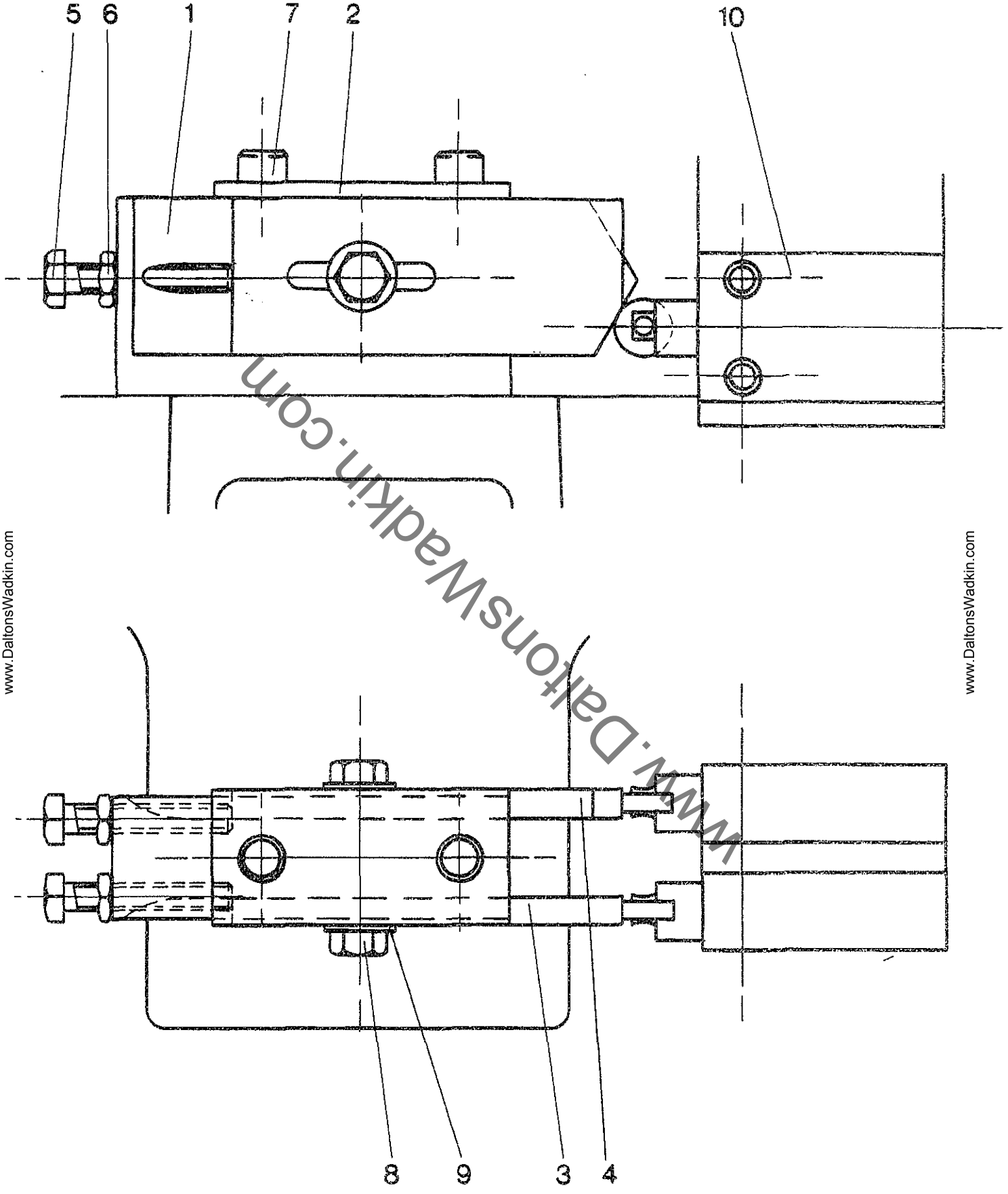


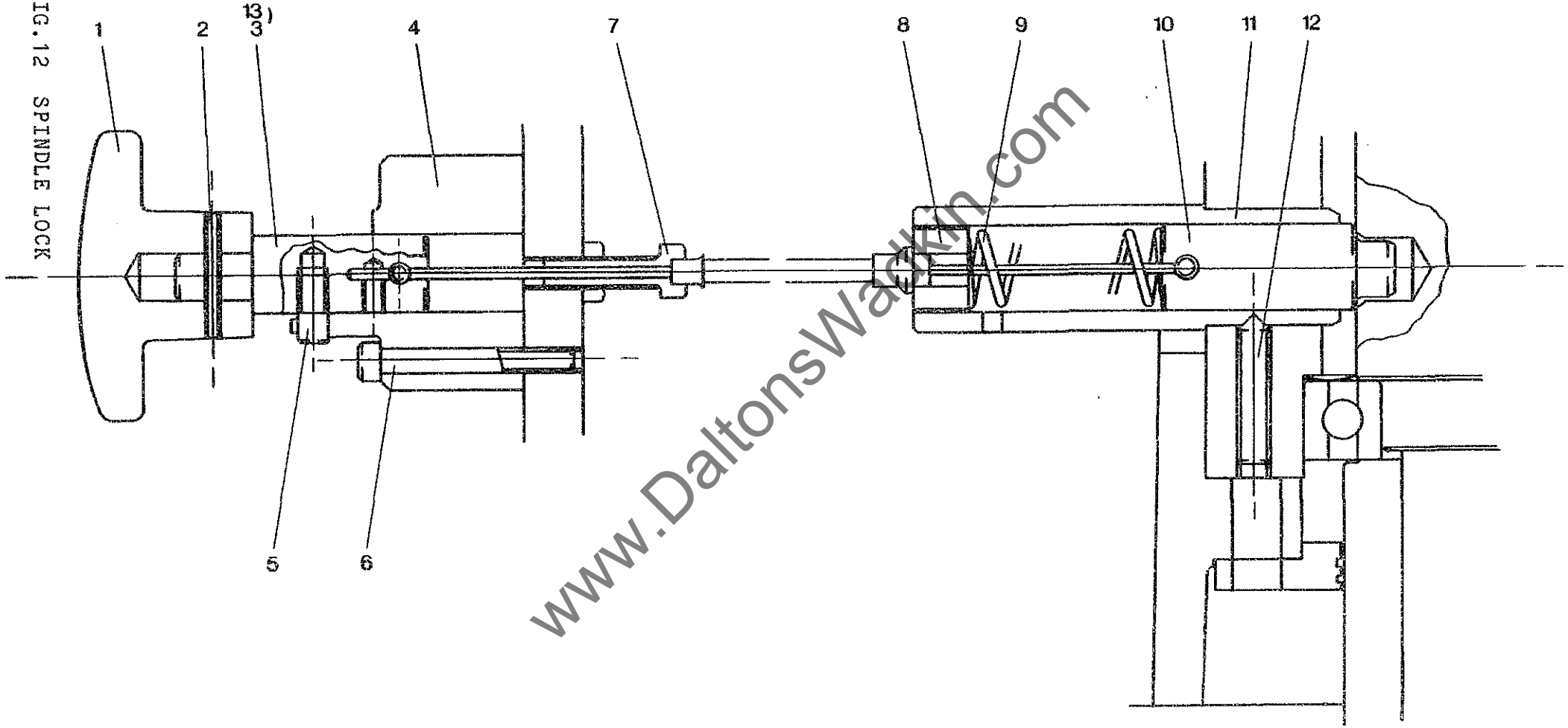
FIG.11 CAMS FOR RISE & FALL

ILLUSTRATED PARTS LIST

SPINDLE LOCK FOR VERTICAL SPINDLES

Ref.No.	Description	Quantity
1	Handwheel	1
2	Tension pin Ø4 x 32LG	1
3	Locking bolt	1
4	Locking bolt housing	1
5	Screwed post	1
6	Hexagon capscrew M6 x 50LG	3
7	Brake cable assy.	1
8	End cap	1
9	Spring	1
10	Locking pin	1
11	Locking pin housing	1
12	Grub screw M8 x 40LG	1
13	Grub screw M6 x 6L	2

FIG.12 SPINDLE LOCK



ILLUSTRATED PARTS LIST

AUTO TURRET STOP

Ref.No.	Description	Quantity
1	Turret stop bar	6
2	Proximity switch ring	1
3	Proximity switch target	1
4	Thrust washer	2
5	Bearing cage	1
6	Proximity switch	6
7	Steel ball Ø8	2
8	Compression spring	2
9	Thrust race cover	1
10	Ferado disc pad	1
11	Detent plate	1
12	Hexagon full nut M8	6
13	Stieder clutch	1
14	Plain washer Ø12	1
15	Hexagon self locking nut M12	1
16	Key 4 x 4 x 30LG	1
17	Turret shaft assembly	1
18	Spacing stub	3
19	Bush 16 x 20 x 25	1
20	Turret mounting plate	1
21	Hexagon cap screw M10 x 25LG	3
22	Screwed stud M6 x 85LG	2
23	Hexagon nut M6	2
24	Cover	1
25	Hand wheel	1
26	Pneumatic cylinder	1
27	Proximity switch	2
28	Flow control valve	2
29	Cylinder clevis	1
30	Clutch arm	1
31	Clutch arm key	1
32	Hexagon cap screw M4 x 8LG	1

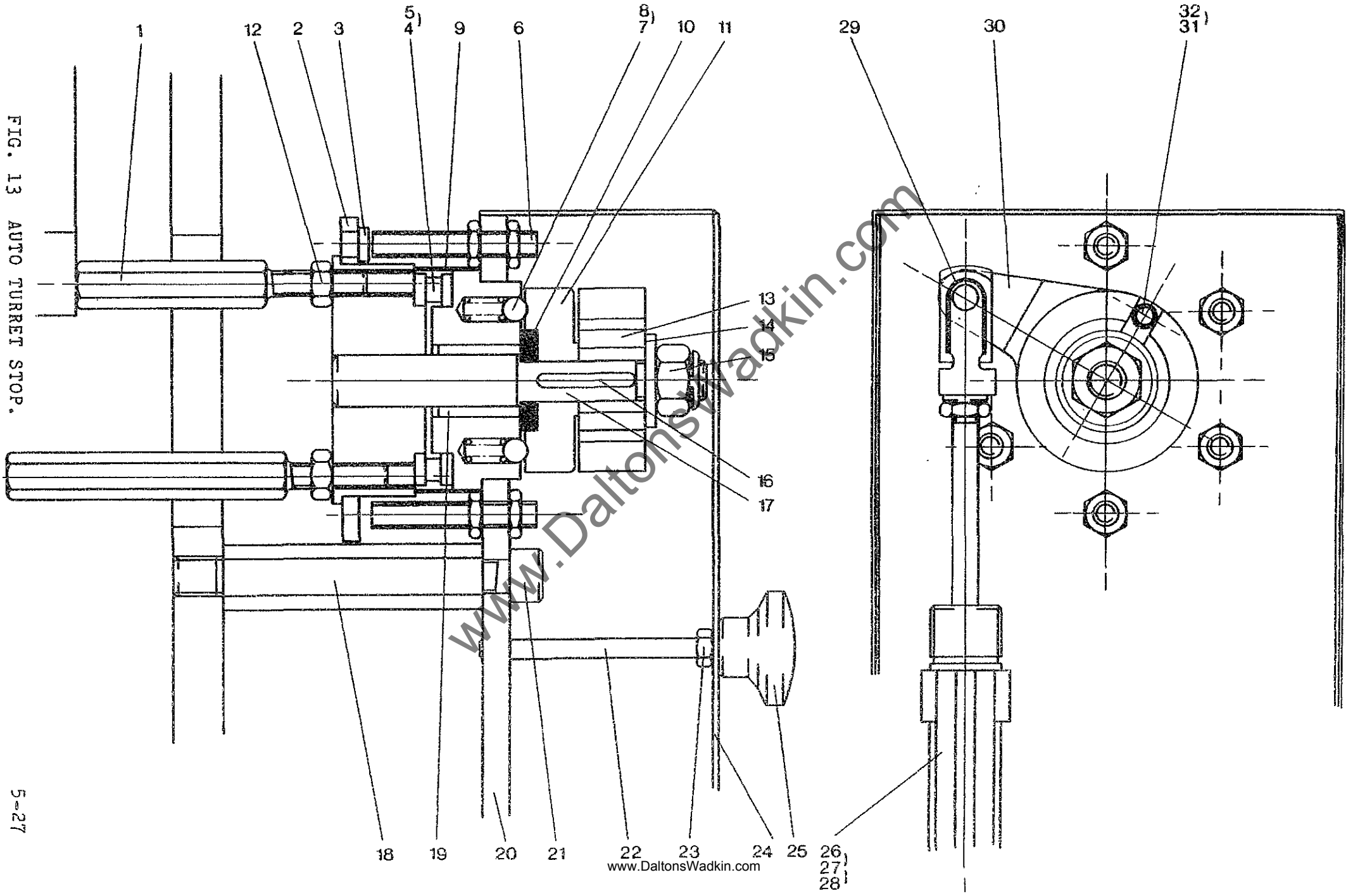


FIG. 13 AUTO TURRET STOP.

ILLUSTRATED PARTS LIST

RISE & FALL TRIP CAM ON FEEDWORKS

Ref.No.	Description	Quantity
1	Rise and fall screw	2
2	Rise and fall nut	2
3	Hexagon cap screw M6 x 20LG	10
4	Grease nipple	2
5	Beam Support arm bracket	2
6	'O' Ring Seal	4
7	Multi-limit switch	1
8	Oil nipple	2
9	Hexagon cap screw M6 x 30LG	4
10	Multi-limit switch bracket	1
11	Spacing tube	4
12	Cam trip rail	1
13	Pan head screw M6 x 25LG	4
14	Trip cam	6
15	Hexagon screw M12 x 40LG	2
16	Plain washer Ø12	2

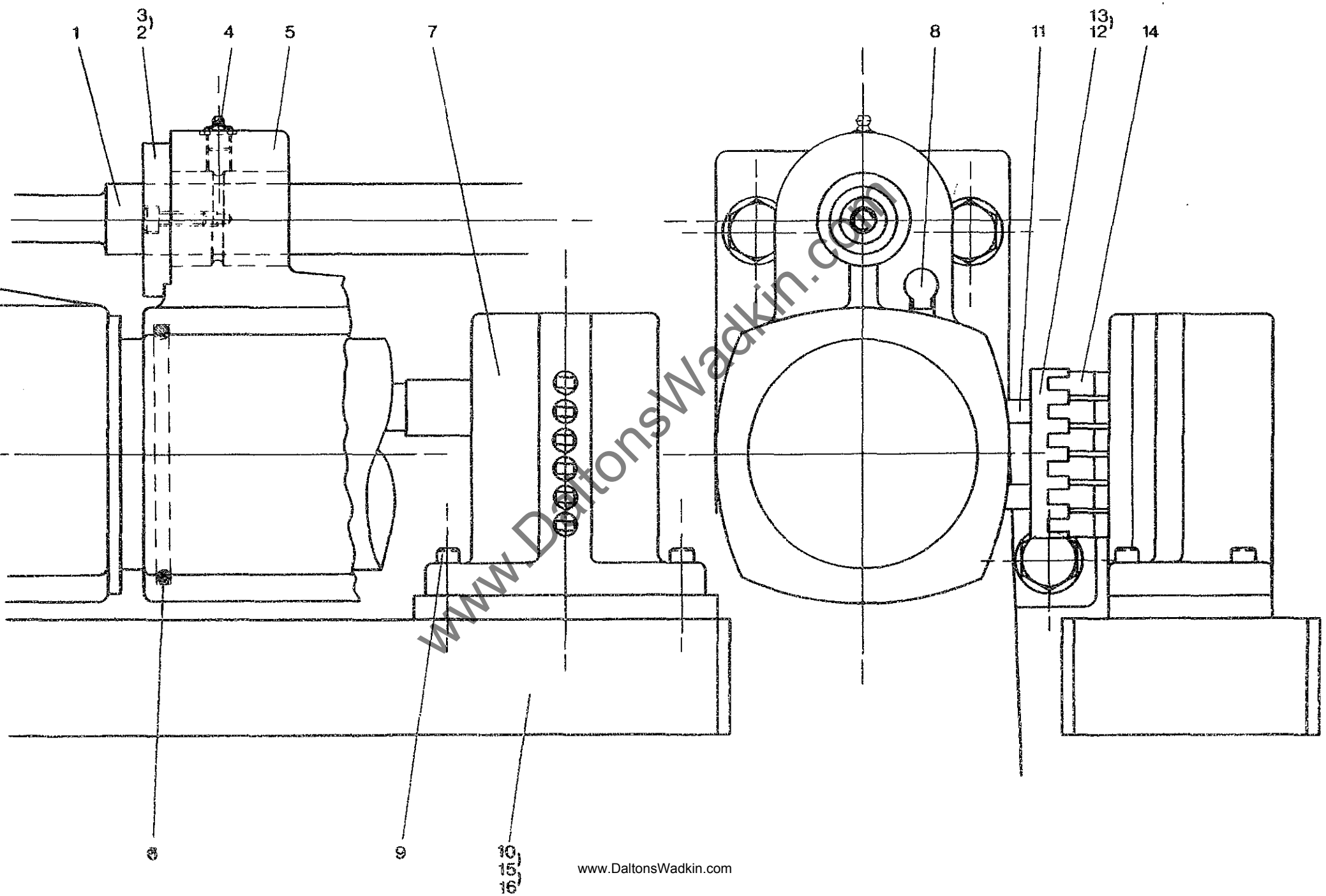


FIG.14 RISE & FALL TRIP CAM-FEEDWORKS

ILLUSTRATED PARTS LIST

FEEDWORKS WITH AXIS CONTROL

Ref.No.	Description	Quantity
1	Support pillar	2 or 3
2	Micro-switch	4
3	Micro-switch support	1
4	Spacers	2
5	Support arms	2 or 2
6	Micro-switch spacers	2
7	Micro-switch trip rail	1
8	Cam-datum trip	1
9	Cam-bottom limit	1
10	Hexagon capscrew M6 x 35LG	2
11	Hexagon capscrew M4 x 45LG	2
12	Hexagon capscrew M4 x 50LG	2

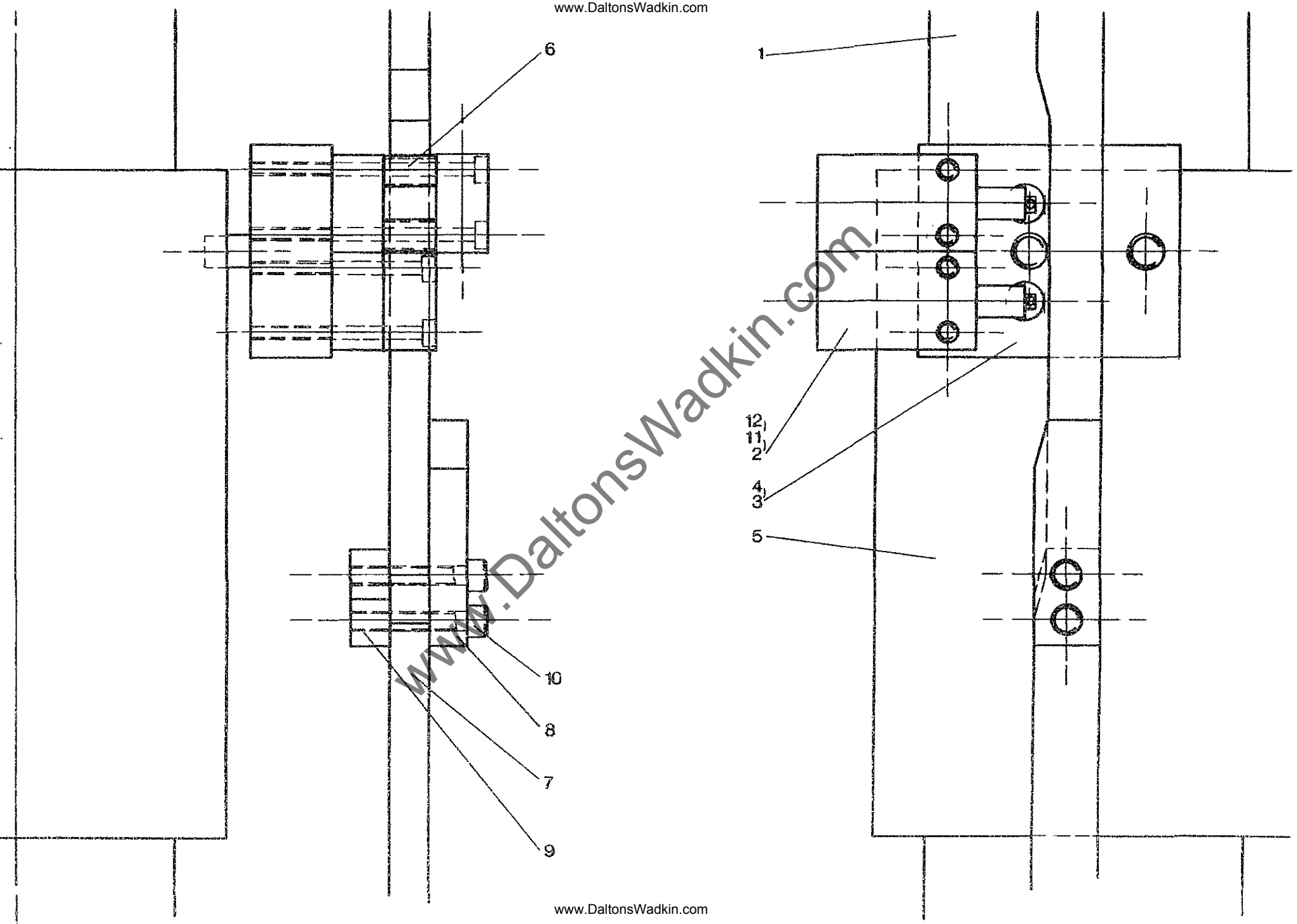


FIG. 15 FEEDWORKS WITH AXIS CONTROL

ILLUSTRATED PARTS LIST

G/BOX AND DRIVE FOR FEEDWORKS

Ref.No.	Description	Quantity
1	Motor/gearbox unit	1
2	Motor/gearbox flange mounting	1
3	Grub screw M8 x 20LG	2
4	Hexagon screw M10 x 25LG	4
5	Spring washer Ø10	4
6	Coupling	2
7	Coupling gear ring	1
8	End cap	1
9	Grub screw M5 x 8LG	2
10	Hexagon screw M10 x 35LG	4
11	Spring washer Ø10	4
12	Key 6 x 6 x 20LG	1
13	Drive shaft	1
14	Key 8 x 7 x 40LG	1
15	Seal	1
16	Thrust bearing	2
17	Bearing spacer	1
18	Grease nipple	1
19	Notch nut M20 x 1.0 Pitch	2
20	Seal	1
21	Bearing housing	1
22	Hexagon screw M10 x 35LG	4
23	Spring washer Ø10	4
24	Hexagon nut M10	4

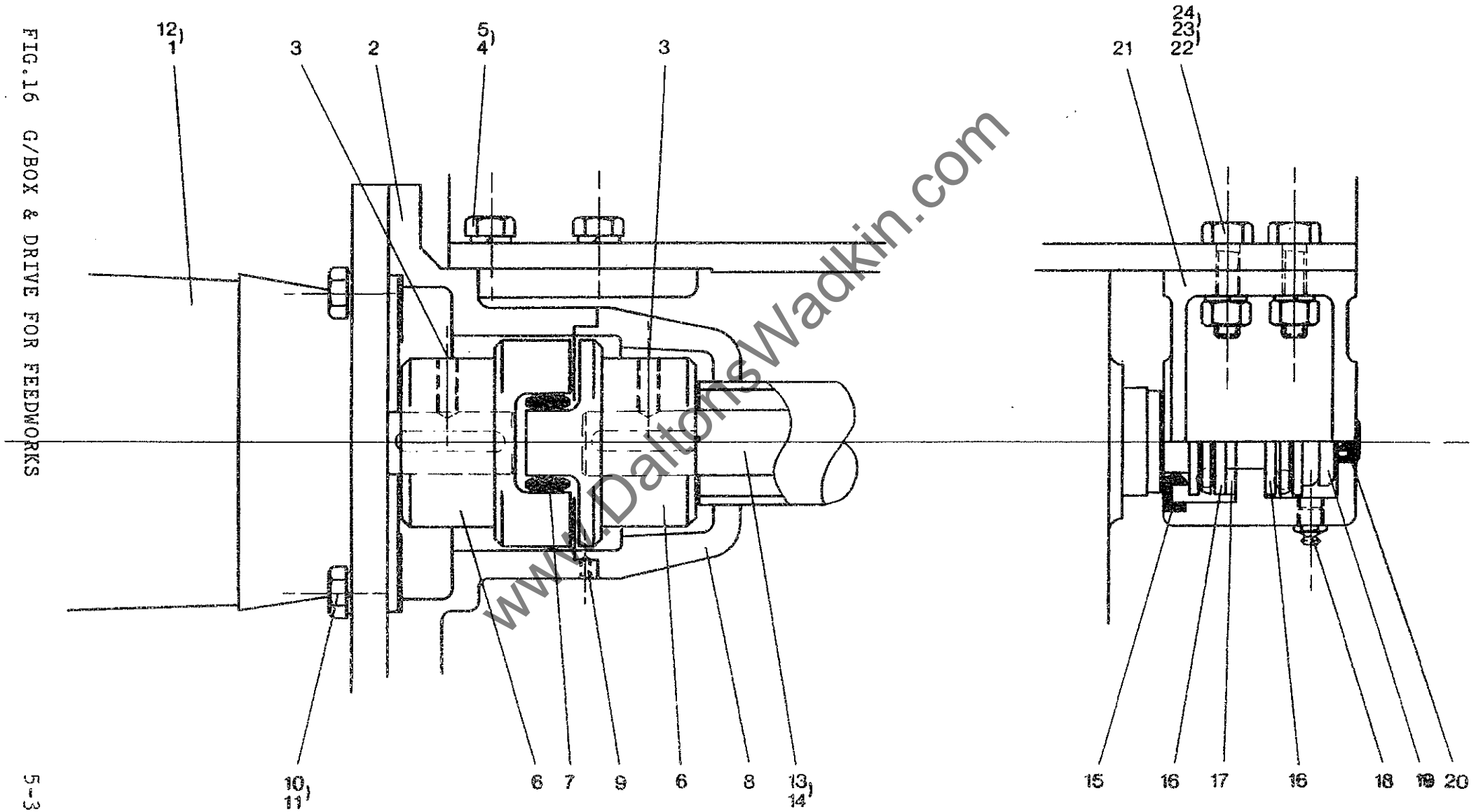


FIG.16 G/BOX & DRIVE FOR FEEDWORKS

ILLUSTRATED PARTS LIST

CAMS FOR TOP HORIZONTAL PLANING HEAD

Ref.No.	Description	Quantity
1	Plate	1
2	Block-microswitch cams	1
3	Vertical over-run cam	1
4	Hexagon capscrew M6 x 55LG	2
5	Vertical datum cam	1
6	Micro-switch	3
7	Micro-switch plate	1
8	Spacing stud	2
9	Hexagon capscrew M4 x 40LG	4
10	Hexagon capscrew M10 x 60LG	2
11	Support plate	1
12	Hexagon screw M6 x 35LG	2
13	Hexagon locknut M6	2
14	Hexagon screw M6 x 12LG	2
15	Large plain washer Ø6	2
16	Hexagon capscrew M10 x 20LG	2

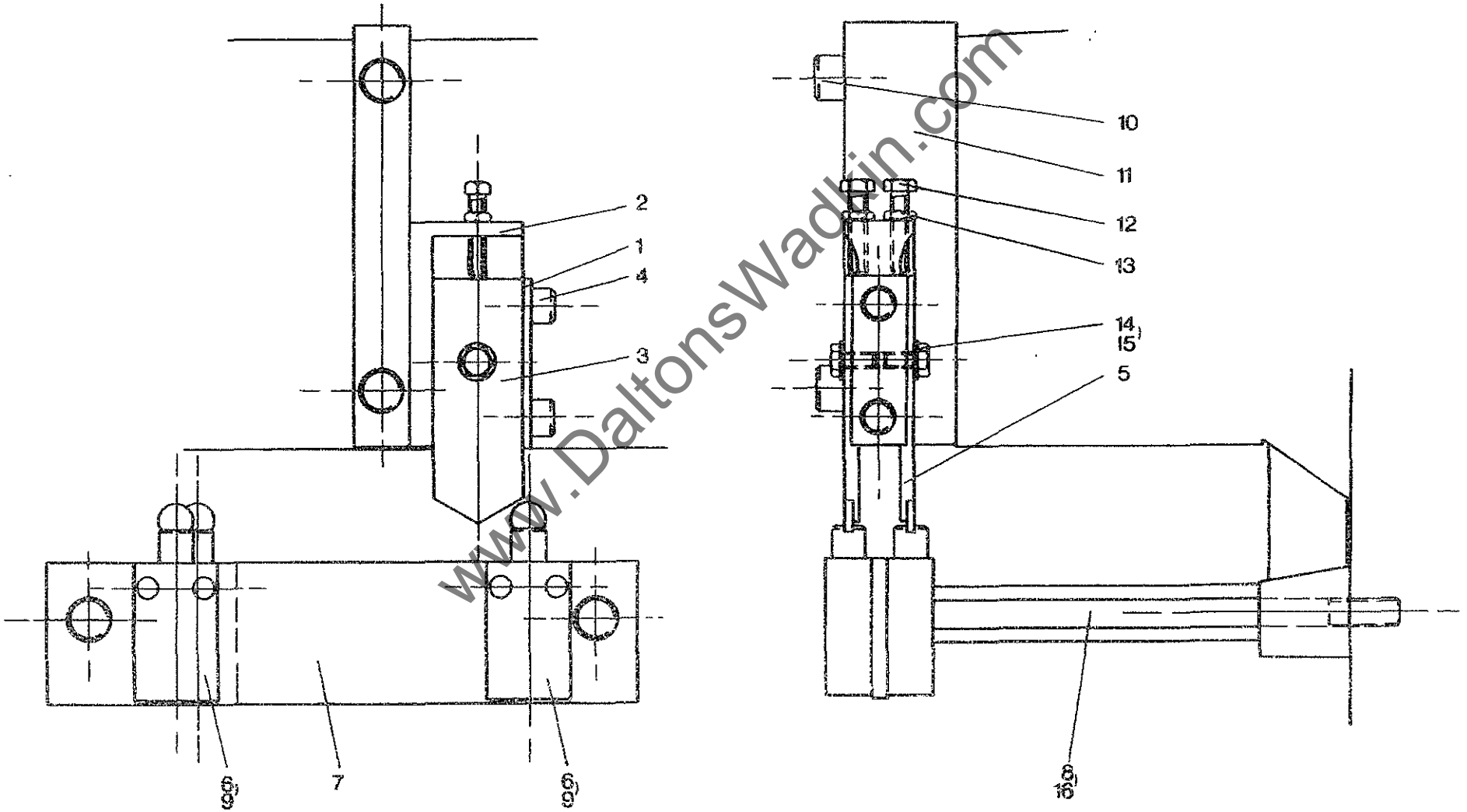


FIG. 17 CAMS FOR TOP HORZ. PLANING HEAD

SECTION 6

WADKIN CONTROL SYSTEM

The Wadkin control system is an in-house designed control system based around the texas 9995 cpu. The basic function of control system is to provide a simple and quick method of setting the machine to which it is connected.

The control system controls the operation of all the axis drives, 6 Position turrets, pneumatic solenoids for jump heads and the raise and fall of the feedworks. It also allows the entering and editing of the positioning data (which is stored in battery backed RAM).

THE SYSTEM CONSISTS OF SEVERAL CARDS

CPU - This is the central processing unit and contains the programme which is stored in EPROM and the data which is stored in RAM.

16 INPUT/OUTPUT BOARD - This board interfaces the cpu to the outside world. This card is used for reading the keypad and writing to the display.

32 INPUT BOARD - This board allows the cpu to examine the status of the different switches on the machine.

32 OUTPUT BOARD - This board allows the cpu to switch on or off any of the relays or solenoids.

AXIS CONTROLLER - This is a pair of boards (linked together by a small cable) that controls the positioning of the motorised axis. (Two axis per set).

RELAY - This board converts the 24V signals from the o/p board to 110v for switching relays and contactors.

BASIC OPERATION OF THE DIFFERENT TYPES OF DRIVE

TURRETS

i) Move the spindle out of the job
ii) Check that it is out
iii) Send the piston out
iv) Check that it is out
v) Send the piston in
vi) Check that it is in
vii) Check the position - if it is not the correct position repeat the above cycle until position found.
viii) If not in position --> error

PNEUMATIC DOUBLE ACTING

i) Switch both outputs OFF
ii) If the required position is IN then switch the IN output on else switch OUT output on

PNEUMATIC SINGLE ACTING

i) Switch IN output off
ii) If the required position is IN then switch the IN output on else do nothing.

FEED WITH CAM SETTING

i) Feed rollers move up until the datum limit switch is made.
ii) Get the position required, move feed rollers down.
iii) If at position stop
iv) If at the reset limit switch, stop, go up until the datum limit switch is made then repeat.

FEED WITH AXIS CONTROL - (AS AXIS)

AXIS

i) Get drive status, report any errors
ii) Get destination and pass the data to the right drive controller.
iii) Repeat until axis has positioned
get status
if error --> report
iv) end

TASK STATUS

During the running of the machine, the control system assigns blocks of memory to each drive. These blocks are called the workspace (WSP). The workspace is used to store any data relevant to that drive. The system also stores a programme counter (PC). This is the position within the programme that the particular drive has stopped at. If a drive has completed its operation then the PC will be zero (0000).

Using option 5 (Task status) the operator can inspect the values of the WSP and PC for each drive. Usually this will be zero, but if the machine stops with the word 'positioning' on the bottom line of the display, this suggests that there is a problem with the machine. The operator should then press the master stop button and then press the '5' (Task status) on the keypad. The display will then show on the bottom line.

E.G. CUTOFF SAW WSP = XXXX PC = YYYY

Where XXXX and YYYY are hexadecimal numbers (numbers 0-9 and letters A-F). By pressing the ENT key the operator can step through the list of drives, noting down the drive name, WSP and PC when a value other that 0000 is displayed for the PC. These values will allow the Wadkin engineers to diagnose the problem with the machine.

BIT TEST

The system also allows the user to read inputs and set outputs using option 6 (Bit test). The bit numbers can be found at the end of this section.

Let us look at an example:-

We wish to check the operation of the "backing piece piston in" switch, but the piston is out.

The first step is to switch the piston out signal off. The backing piece piston out is bit 263.

Actions on keypad	**Display shows**
1) Press 6	BIT NUMBER(S)
2) Press 2 6 3	BIT NUMBER(S) 263
3) Press ENT	NEXT BIT
4) Press ENT	ON? Y OR N Y

Use the up and down arrows to change the Y to N

5) Press UP or DOWN	ON? Y OR N N
6) Press ENT	BIT NUMBER (S)

The system will now switch the output off.

The next stop is to switch the backing piece piston in signal on.
The backing piece piston in is bit 262

Actions on keypad	**Display shows**
1) Press 2 6 2	BIT NUMBER(S) 262
2) Press ENT	NEXT BIT
3) Press ENT	ON Y OR N Y
4) Press ENT	TIME DELAY (0-10s)
5) Press 4	TIME DELAY (0-10s)4
6) Press ENT	TIME DELAY (0-10s)4

The system will then switch the output on for the required length of time. Four seconds is long enough to set the output. After 4 seconds the display will show.

BIT NUMBER(S)

The final step is to read the backing piece piston in switch, this is bit 184.

Actions on keypad	**Display shows**
1) Press 1 8 4	BIT NUMBER(S) 184
2) Press ENT	BIT NUMBER(S) 184 TO

The system is asking for a range of inputs to display

3) Press ENT.

The display will clear and then display

184
ON

4) Press ENT BIT NUMBER(S)

To exit from the option press ESC on the keypad.
For a full list of bit numbers refer to Table 1 at the back of this part of the book.

REPLACING A CARD

1. Switch the power off.
2. Open cabinet door.
3. Locate card to be replaced.
4. Using RED extractor at the bottom of the card, remove the card from the slot.
5. If replacing a 16 input/output, 32 input, 32 output or axis card 1. Then set the address switches on the new card to the same settings as the old card. A list of switch settings can be found in the "INPUT-OUTPUT CARD SWITCH SELECTION" table.
6. Insert the new card into the rack.

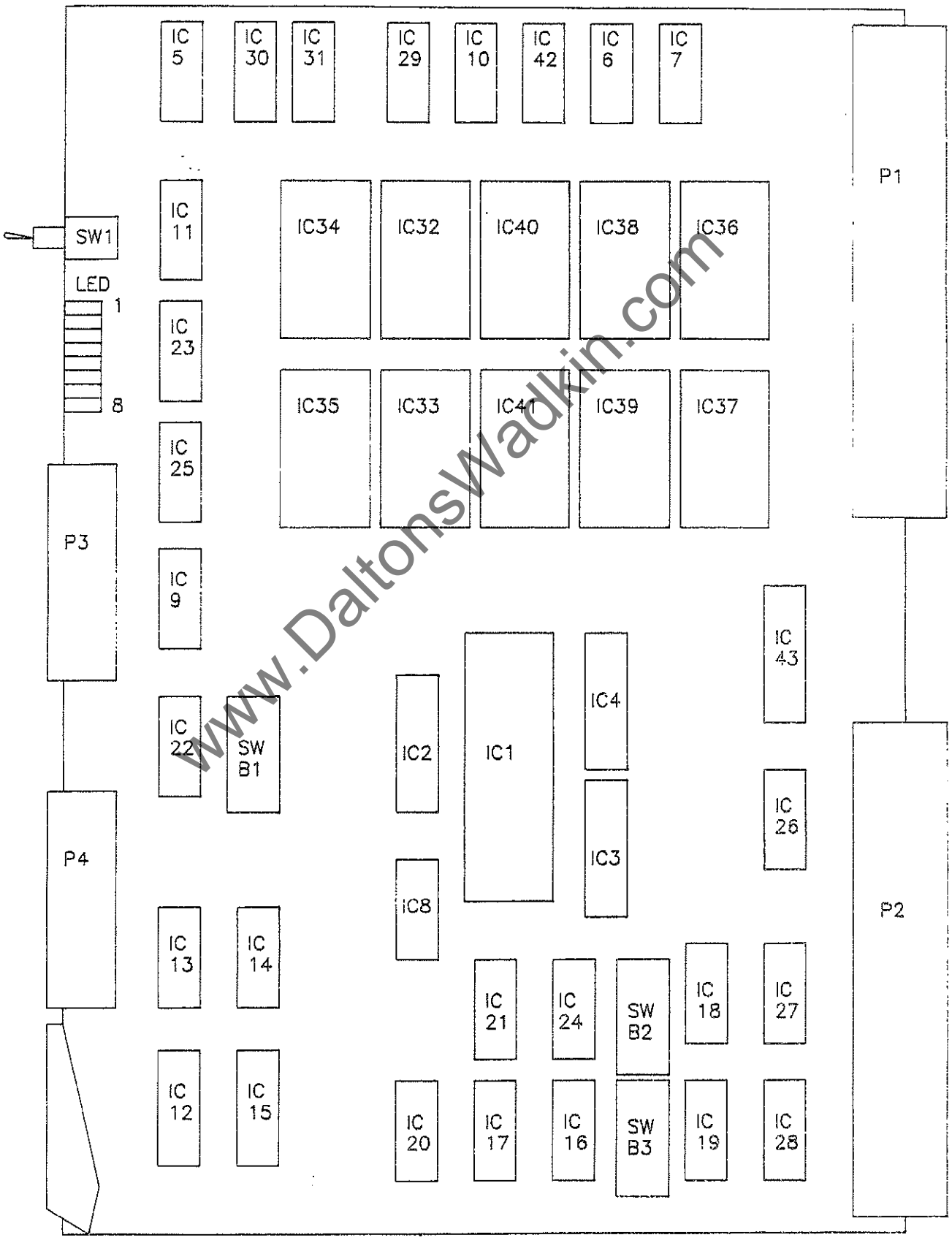
REPLACING AN ENCODER

1. Switch the power off.
2. Remove the plug from the encoder.
3. Remove encoder from fixture.
4. Fit new encoder.
5. Refer to the "SETTING UP THE MACHINE" section for the correct procedure for setting datum.

THE CPU CARD (See Fig.1)

SW1	-	Reset switch, used to reset the processor when the system locks up.
LED 1-8	-	These are used to indicate the status of the processor. LED's 1-4 flash once on power up to indicate that the memory is O.K. They also flash when the machine is setting up.
P3	-	Serial port 1.
P4	-	Serial port 2.
IC 32-IC 35	-	EPROM sockets.
IC 36-IC 41	-	RAM sockets.

CPU (Fig.1)



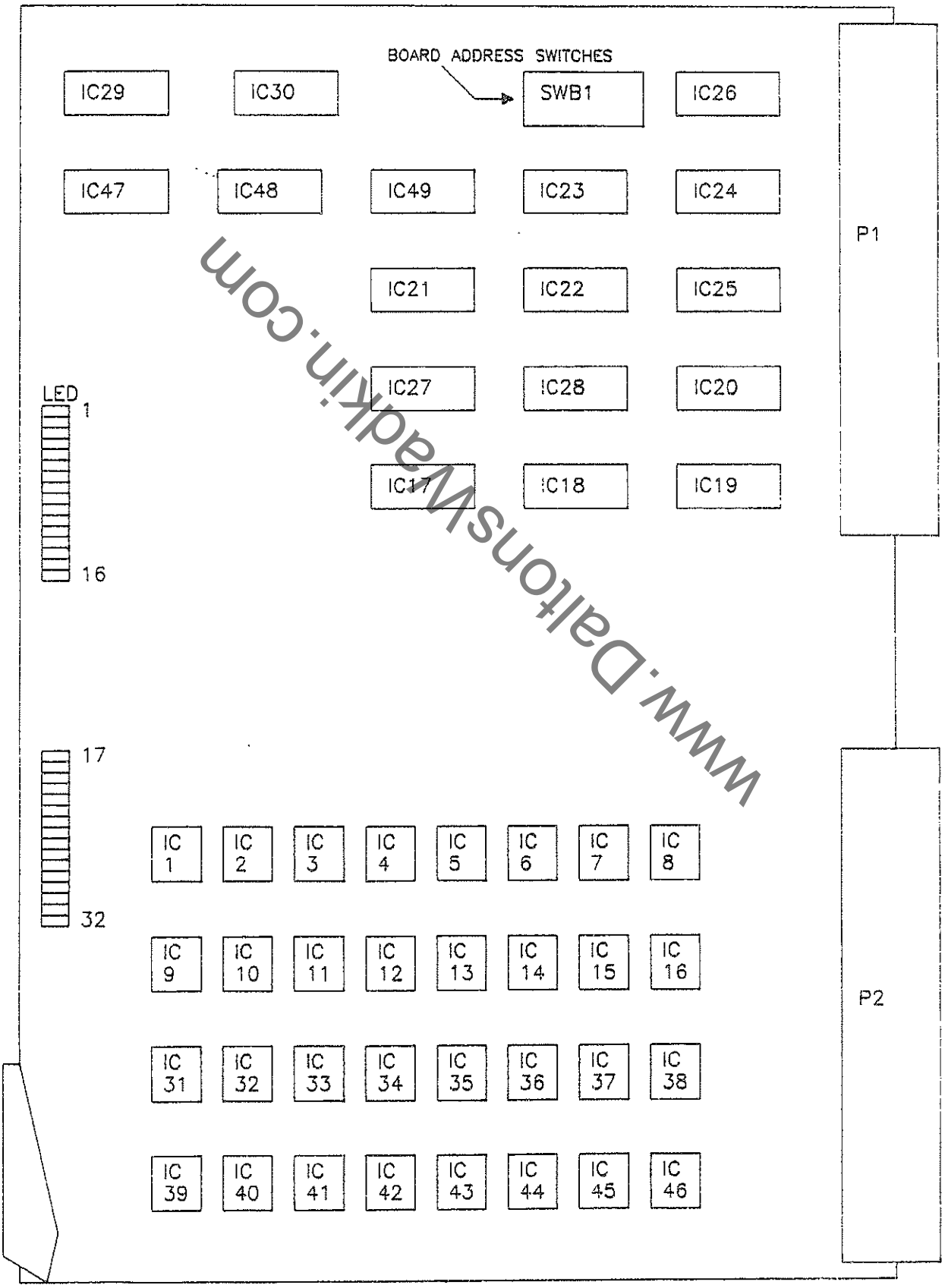
THE 16 IN/OUT CARD (See Fig.2)

SWB1 - Board address selection

LED 1-16 - Displays the status of the 16 inputs.

LED 17-32 - Displays the status of the 16 outputs.

16 IN/OUT CARD (Fig.2)

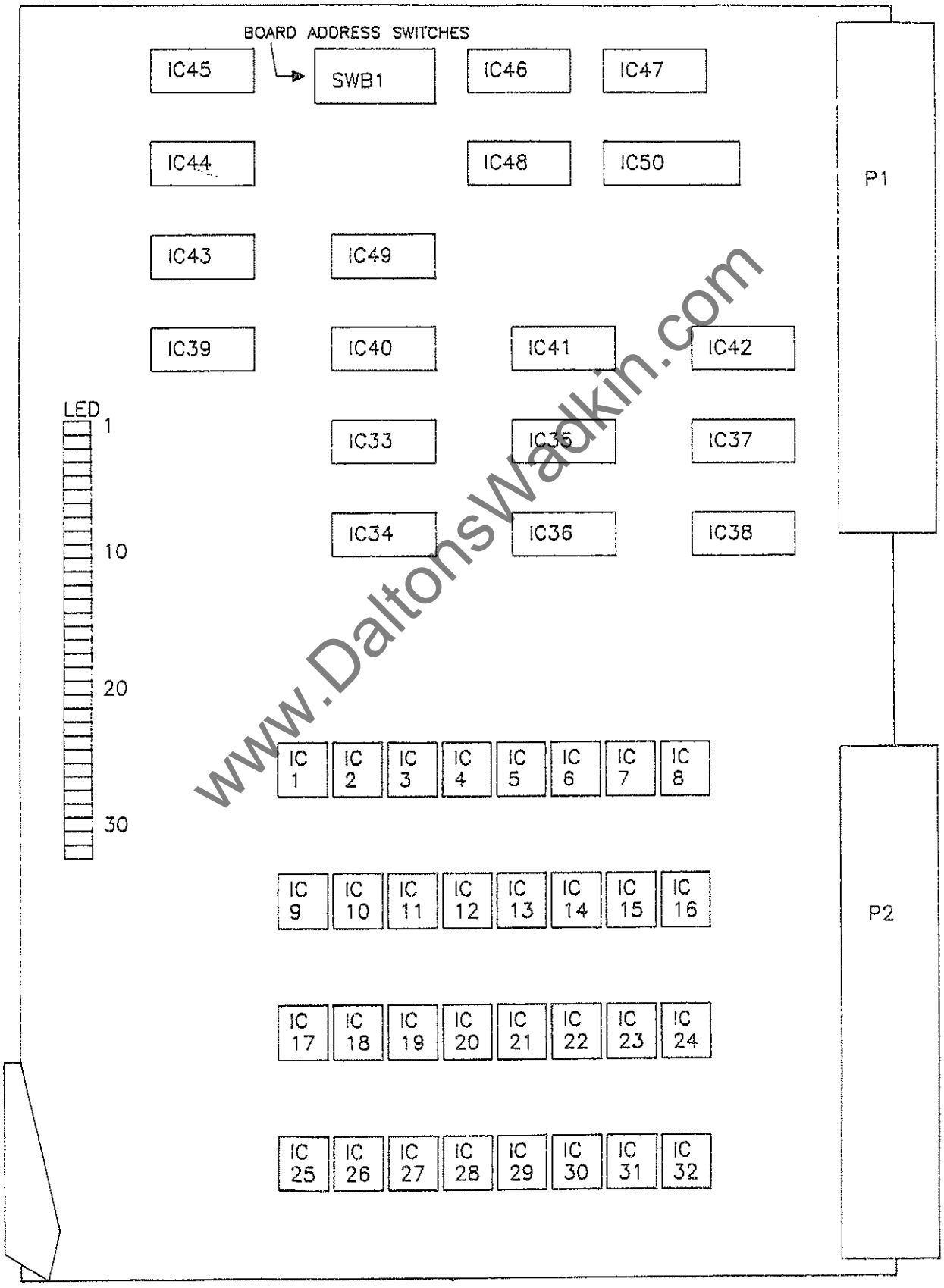


THE 32 INPUT CARD (See Fig.3)

SWB1 - Board address selection

LED 1-32 - Displays the status of the inputs.

32 INPUT CARD (Fig.3)

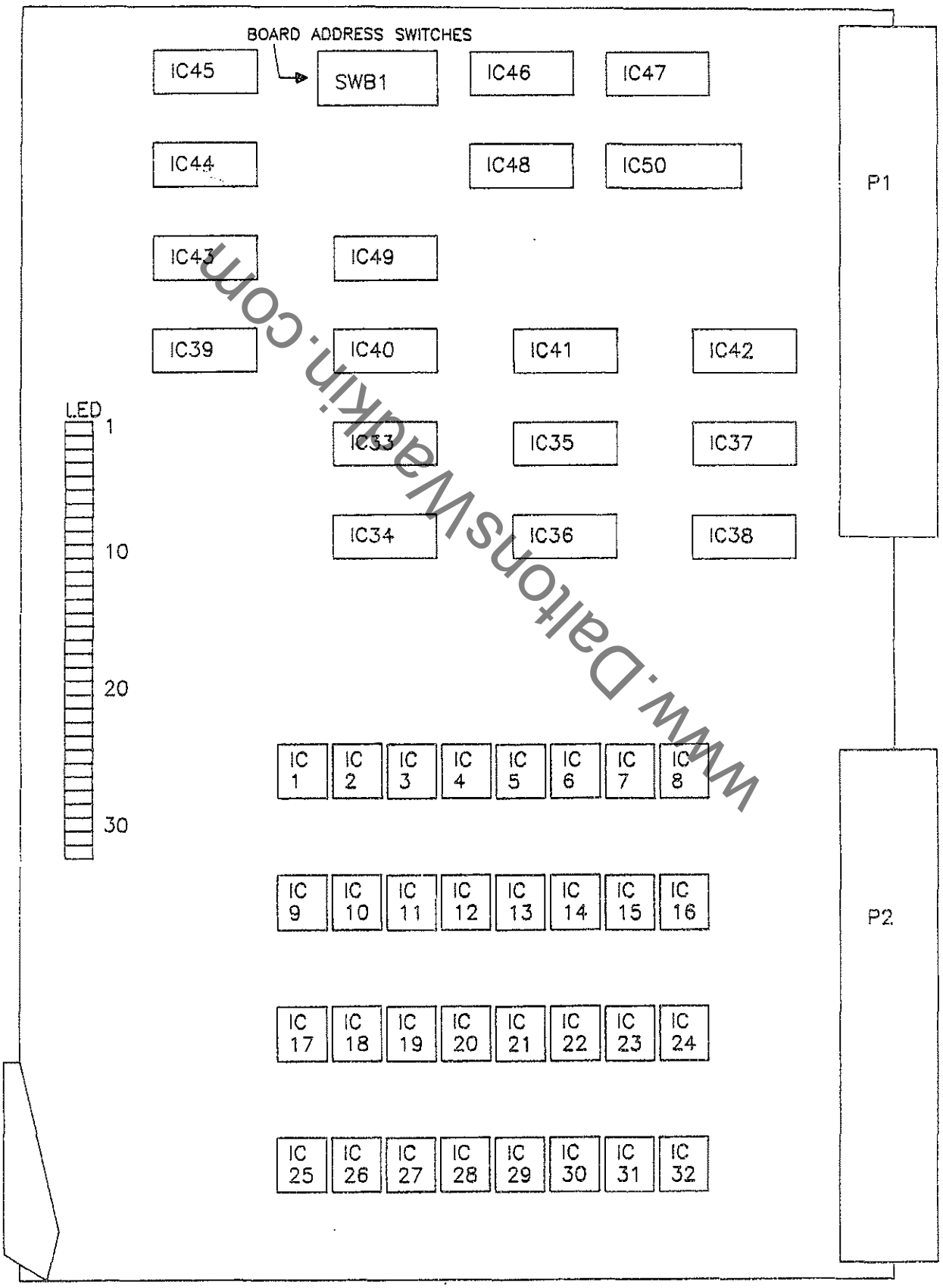


THE 32 OUTPUT CARD (See Fig.4)

SWB1 - Board address selection

LED 1-32 - Displays the status of the outputs.

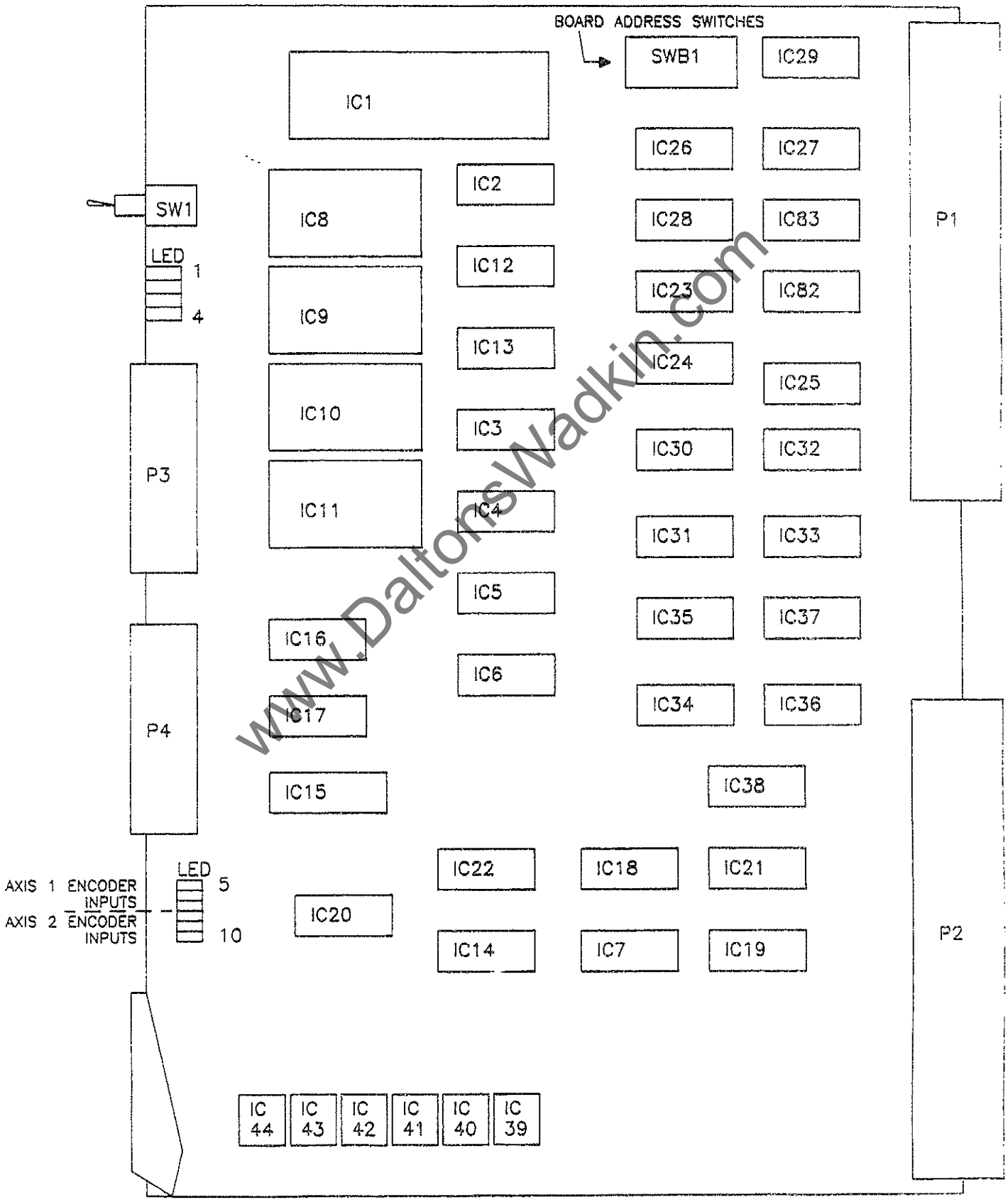
32 OUTPUT CARD (Fig.4)



THE AXIS CARD 1 (See Fig.5)

SW1	- Reset switch, resets the axis controller when the system has locked up, when reset, the axis will go back to datum the next time the axis is called for.
LED 1-4	- These indicate the status of the axis processor. The normal condition is with all 4 LED's flashing. LED 1 on only indicates communication failure between the 2 cards.
P3	- Serial port 1.
P4	- Communications between card 1 and card 2
LED 5	- Indicates the status of the first axis encoder channel 'A'
LED 6	- Indicates the status of the first axis encoder channel 'B'
LED 7	- Indicates the status of the first axis encoder market channel.
LED 8	- Indicates the status of the second axis encoder channel 'A'
LED 9	- Indicates the status of the second axis encoder channel 'B'
LED 10	- Indicates the status of the second axis encoder market channel.
IC 8 & 9	- EPROM sockets.
IC 10 & 11	- RAM sockets
SWB1	- Board address selection

AXIS CARD 1 (Fig.5)



THE AXIS CARD 2 (See Fig.6)

LED 11 - Indicates the first axis datum switch status.

LED 12 & 15- Indicates the status of the master stop.

LED 14 - Indicates the second axis datum switch status.

LED 17 - Indicates the status of the first axis GO output.

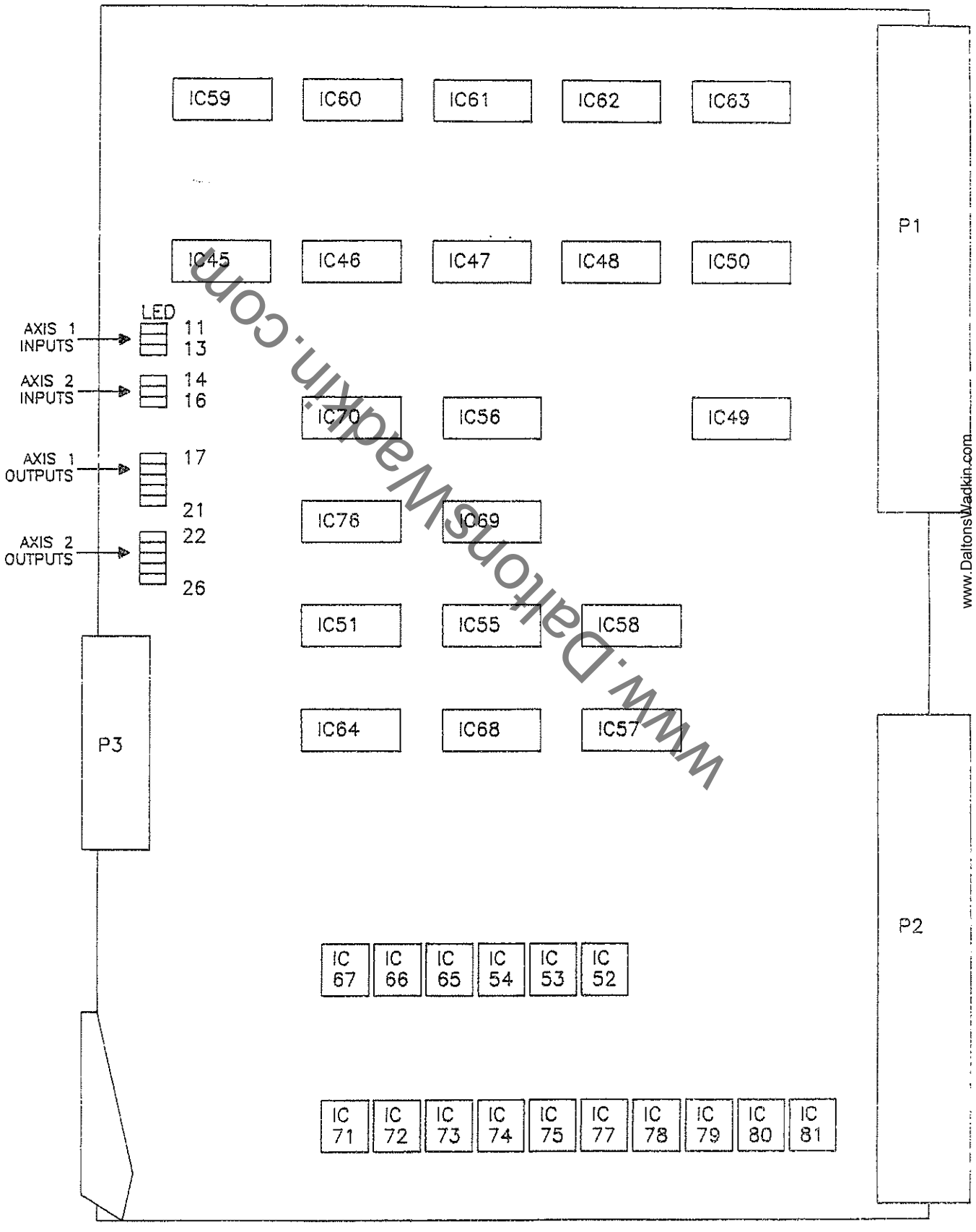
LED 19 - Indicates the status of the first axis DIR output.

LED 22 - Indicates the status of the second axis GO output.

LED 24 - Indicates the status of the second axis DIR output.

P3 - Serial Port 1.

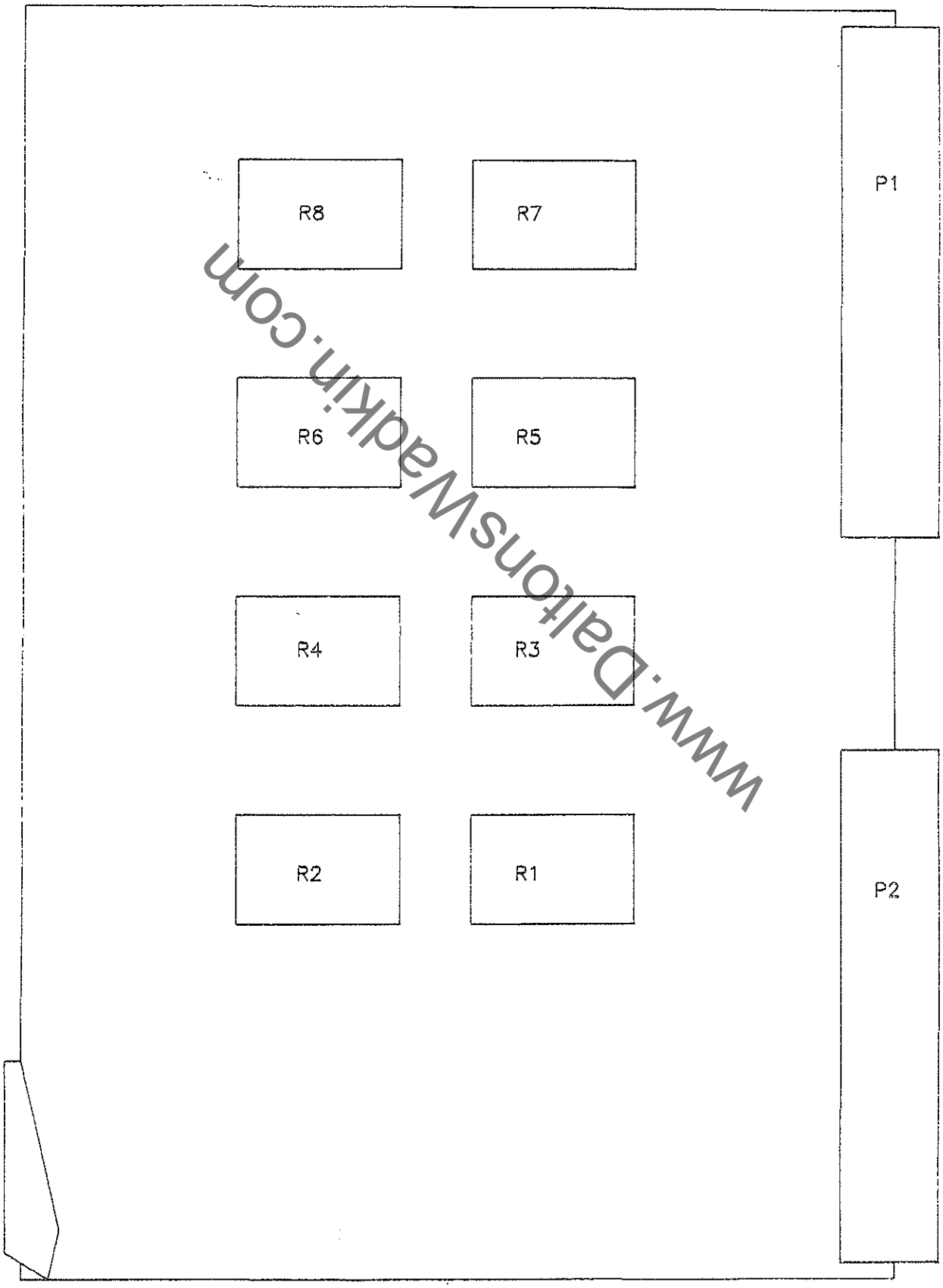
AXIS CARD 2 (Fig.6)



THE RELAY CARD (See Fig.7)

R 1-8 - 24V - Relays for switching the 110v ac for contactors and solenoids.

RELAY CARD (Fig.7)

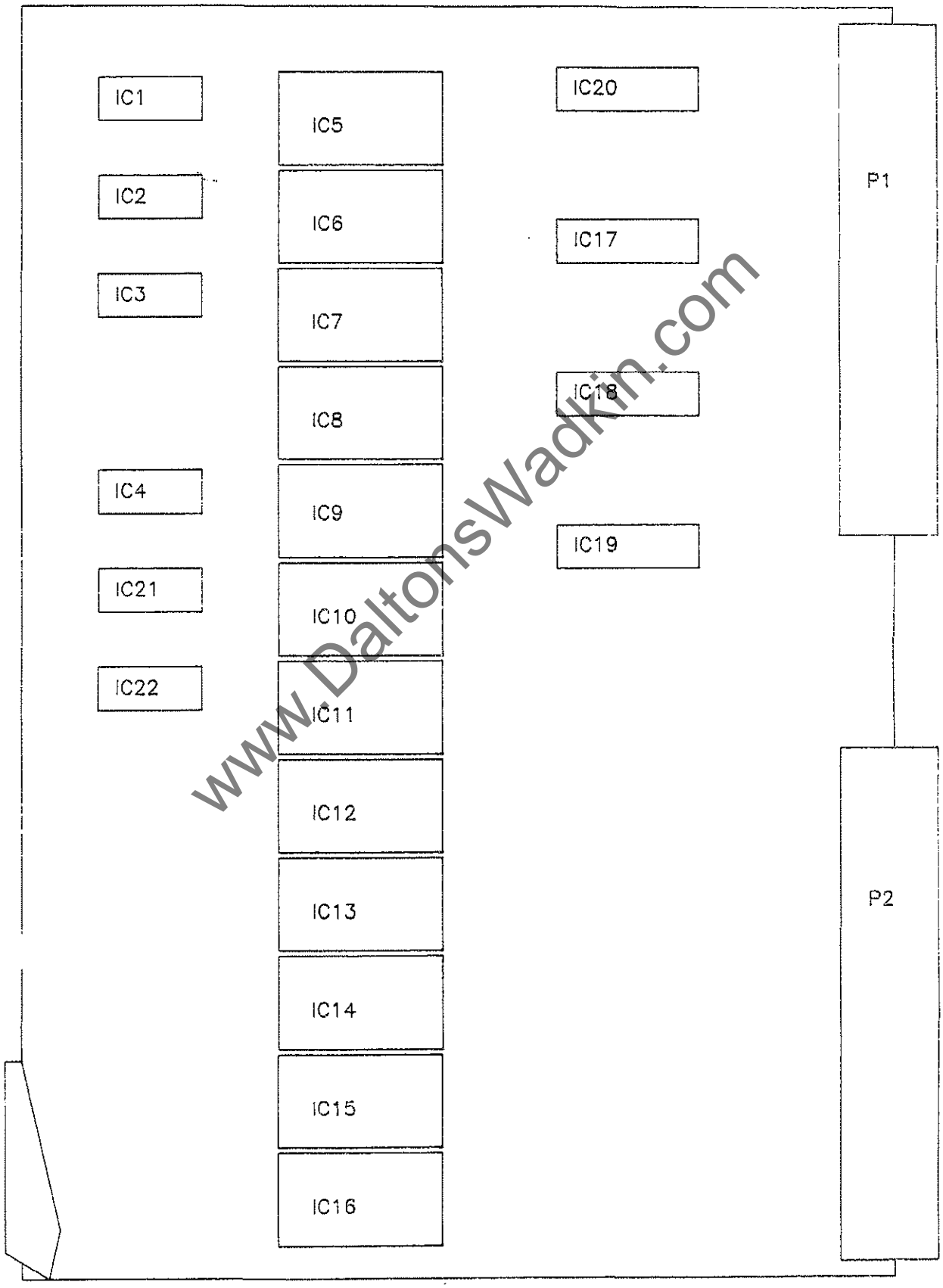


THE MEMORY EXPANSION CARD (See Fig.8)

IC 5 - 8 - EPROM sockets.

IC 9 - 16 - RAM sockets.

MEMORY EXPANSION (Fig.8)



INPUT-OUTPUT CARD SWITCH SELECTION

SWITCH NO.			1	2	3	4	5	6	7	8			
BOARD CRU ADDRESS	0	1	2	3	4	5	6	7	8	9	10	11	12
200							*						
240							*			*			
280							*		*				
200							*		*	*			
300							*	*					
340							*	*		*			
380							*	*	*				
300							*	*	*	*			
400						*							
440						*				*			
480						*			*				
400						*			*	*			
500						*		*					
540						*		*		*			

AXIS CONTROL CARD SWITCH SELECTION

SWITCH NO.			1	2	3	4	5	6	7	8			
BOARD CRU ADDRESS	0	1	2	3	4	5	6	7	8	9	10	11	12
1200				*			*						
1240				*			*			*			
1280				*			*		*				
1200				*			*		*	*			
1300				*			*	*					
1340				*			*	*		*			
1380				*			*	*	*				
1300				*			*	*	*	*			
1400				*		*							
1440				*		*				*			
1480				*		*			*				
1400				*		*			*	*			
1500				*		*		*					
1540				*		*		*		*			

OPTIONS

1. NOT USED
2. ENTER PRODUCT AND COMPONENT NAMES
3. ENTER COMPONENT DATA
4. DRIVE TEST (SINGLE DRIVE MOVEMENT)
5. TASK STATUS
6. BIT TEST
7. ENTER LENGTH (ONLY WITH POWERED END STOP)

FAULT FINDING

ERROR MESSAGES ON DISPLAY SCREEN

FAULT **'WOOD IN MACHINE'** appears when m/c set up button is pressed.

Diagnosis

a The last micro switch on the feedworks has not been activated.
b Two piece feeding selected - One piece fed through.
c Profiling side only has been used for machining components.
d Micro switches have been activated during setting up.

Remedial Action

a Press ESC on keypad. Switch off power/Switch on. Check that micro switch setting is still correct (Fig 11).
Press m/c set up button.
b Press ESC on keypad - change switch from 2 piece feeding to 1 piece feeding - Press m/c set up button.
c As b
d As b and c

FAULT **'TABLE NOT BACK'** appears when m/c set up button is pressed.

Diagnosis

a Cam at side of table is not making contact with micro switch at start position.

Remedial Action

a Press ESC on keypad. Select manual control
Press clamps on button.
Press automatic cycle start button.
Press and hold 'inch forward' button until table cams have moved clear of micro switches.
Press and hold 'inch reverse' button until table stops.
If the micro switch is now made, the clamps can be released.
Select automatic operation - Press m/c set up button.

FAULT 'DATUM FAILED' appears when m/c set up button is pressed.

Diagnosis

a The datum switch is permanently closed and the signal has failed to go within 4 revolutions of the encoder.

Remedial Action

a Change datum switch or contact Service Dept.

FAULT 'MARK FAILED' appears when m/c set up button is pressed.

Diagnosis

a The marker pulse has failed to appear within 1 revolution of the encoder, after the datum signal has gone or after seeing the market pulse, the marker has failed to go within 1 revolution of the encoder.

Remedial Action

a Change encoder and carry out set up procedure for axis as outlined in SETTING UP THE MACHINE or contact Service Dept.

FAULT 'STALLED' appears when m/c set up button is pressed.

Diagnosis

a The axis has driven onto an overtravel switch.
b The encoder has failed.
c The axis card has failed.
d The motor has failed.
e Axis drive screw has seized.

Remedial Action

a Select manual control, take off brakes and wind head clear of limit switch by at least 10mm.
b Change encoder and carry out set up procedure for axis as outlined in SETTING UP THE MACHINE or contact Service Dept.
c Change axis card or contact Service Dept.
d Contact Service Dept.
e Contact Service Dept.

FAULT **'POSITIONING'** stops on the bottom line of display panel.

Diagnosis

a Control system is still awaiting information back from one of the drives which has a fault.

Remedial Action

a Press master stop button and then press button 5 on the keypad (Task Status).
The display will then show on the bottom line.

CUT OFF SAW WSP = XXXX PC = YYYY
Where XXXX and YYYY are hexidecimal numbers (numbers 0-9 and letters A-F).
By pressing ENT button on keypad step through the list of drives, noting down the drive name, WSP and PC when a value other than 0000 is displayed for the PC.
Relay these values to Wadkin electrical engineers who will be able to diagnose the problem with the machine.

FAULT **'CANNOT READ TURRET POSITION'** appears when m/c set up button is pressed.

Diagnosis

a Target disc is positioned between two proximity switches.
b Proximity switch is faulty.
c The input board is faulty.

Remedial Action

a Press ESC on keypad. Manually turn turret stops of turret in error until location of steel ball is felt. The target disc should now be opposite one of the proximity switches. It does not matter which position this is.
Push m/c set up button and turret should now index to correct position.
If error persists, dampen turret clutch movement. See ILLUSTRATED PARTS LISTS.
b Change proximity switch or contact Service Dept.
c Change input board or contact Service Dept.

OTHER FAULTS

FAULT **Table will not feed**

Diagnosis

a Cam at side of table is not making contact with micro switch at start position.
b Tenon spindle hood safety cover has not raised up far enough to make contact with micro switch (WMC 6, WMC 6XPC).
c Control panel switch is set to SASH (Machines with Sash Profiling option).
d Air pressure to regulator below table has dropped below set level.

Remedial Action

a As 'TABLE NOT BACK' error.
b Check switch is clear and nothing is fouling Safety cover movement. Adjust flow control valves feeding rise and fall of cylinder if required.
c Set control panel switch to NORMAL.
d Remove cover and check pressure. Increase pressure until table will feed.

FAULT **Pusher stays back at transfer table and hinged flap is pushed in.**

Diagnosis

a First micro switch on feedrollers has not been activated.
b 2 Piece feeding has been selected and only 1 piece has been fed.

Remedial Action

a Switch off power/Switch on.
Check that micro switch setting is still correct.
Press m/c set up button.
b Select 1 piece feeding. Press m/c set up button.

FAULT Component stays at transfer table

Diagnosis

a First micro switch on feedrollers has not been activated.
b 1 piece feeding has been selected and 2 pieces fed.

Remedial Action

a Switch off power/Switch on
Check that micro switch setting is still correct.
Select 1 piece feeding. Press m/c set up button.
Feed component manually into profile unit.

b Feed component manually into profile unit.
Select 2 piece feeding.

FAULT Mains power off light is illuminated.

Diagnosis

a Switch fitted to enclosure gate is not closed.
b Switch fitted to feed beam is not closed. (Trip wire).

Remedial Action

a Ensure gate is closed.
b Adjust tension screws to trip wire.