OPERATING AND MAINTENANCE INSTRUCTIONS

WN AND WNF DOUBLE ENDED DIMENSION

AND PROFILING MACHINE

INSTRUCTION MANUAL 1089/1

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IMPORTANT

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

THIS MACHINE, WHEN UNDER WORKING CONDITIONS, MAY PRODUCE A NOISE LEVEL IN EXCESS OF 90 D.B. WADKIN LTD. WILL SUPPLY INFORMATION ON ACOUSTICAL ENCLOSURES ON REQUEST, AND WILL REQUIRE A WRITTEN UNDERTAKING THAT THE NECESSARY STEPS WILL BE TAKEN TO ENSURE THAT THE MACHINE IS ONLY USED IN COMPLIANCE WITH THE TERMS OF HEALTH AND SAFETY AT WORK ACT 1974.

SAFETY RULES

THE SAFE OPERATION OF WOODWORKING MACHINERY REQUIRES CONSTANT ALERTNESS AND CLOSE ATTENTION TO THE WORK IN HAND.

CAREFULLY READ INSTRUCTION MANUAL BEFORE OPERATING MACHINE.

DO NOT OPERATE WITHOUT ALL GUARDS AND COVERS IN POSITION.

BE SURE MACHINE IS ELECTRICALLY 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 SAFETY FACE SHIELD, GOGGLES, OR GLASSES TO PROTECT EYES AND OTHER PERSONAL SAFETY EQUIPMENT AS REQUIRED.

STOP MACHINE BEFORE MAKING ADJUSTMENTS OR CLEANING CHIPS FROM WORK AREA.

BLUNT CUTTERS OFTEN CONTRIBUTE TO ACCIDENTS. AN EFFICIENT MACHINIST KNOWS WHEN RE-SHARPENING IS NECESSARY, BUT IF THERE IS RELUCTANCE TO SPEND TIME ON GRINDING AND RE-SETTING, THE CUTTERS MAY BE RUN BEYOND THEIR EFFICIENT LIMITS AND INSTEAD OF CUTTING EFFICIENTLY AND SMOOTHLY, THEY TEND TO CHOP AND SNATCH AT THE WOOD. THIS NOT ONLY INCREASES THE RISK OF ACCIDENTS BUT ALSO LOWERS THE QUALITY OF WORK.

CUSTOMERS ARE STRONGLY ADVISED TO USE AT ALL TIMES, HIGH TENSILE STRENGTH CUTTER BLOCK BOLTS WHICH SHOULD BE TENSIONED BY MEANS OF A TORQUE SPANNER SET AT 17 MKG. - METRES KILOGRAMMES - 125 LBS. FT.

KEEP THE FLOOR AROUND THE MACHINE CLEAN AND FREE FROM SCRAPS, SAWDUST, OIL OR GREASE TO MINIMISE THE DANGER OF SLIPPING.

INDEX

DOUBLE ENDED DIMENSIONING AND PROFILING MACHINE MODEL WNF

PRINCIPAL DIMENSIONS AND CAPACITIES

Maximum distance across outside of chain tracks		1500mm (60in.)
	or	2500mm (102in.)
	or	4000mm (158in.)
Minimum distance across outside of chain tracks		150mm (6in.)

Nominal Beam Capacities with Forward Feeding Dogs.

Beam	Long Pressure	Extra Long Pressure
36 pitch	27in. (680mm)	18in. (450mm)
40 pitch	45in. (1150mm)	36in. (900mm)

Maximum depth of timber accepted	100mm (4in.)
Maximum opening of top pressures	228mm (9in.)
Maximum overhang from chain edge	205mm (8in.)
Diameter of Saws.	
Main column - front slide	350mm (14in.)
centre slide	300mm (12in.)
rear slide	300mm (12in.)
Beam mounted	300mm (12in.)
Spindle diameter	30mm (1.1/4in.)
Optional spindle diameter	40mm (1.9/16in.)
Feed speed - infinitely variable	2.7/24m/min. (9-80ft./min.)
Rating of Head Motors (except drilling, jump dado and scoring heads)	3.7kW (5 h.p.)
Optional	5.5kW (7.1/2 h.p.)
Speed of head motors	7.5kW (10 h.p.) 3000 rev/min. (6000 rev/min with high frequency)
Feed Motor	2.2 kW (3 h.p.)
Speed of feed motor	750 r.p.m.
Traverse Motor	1.1kW (1.1/2 h.p.)
Speed of Traverse Motor	1500 r.p.m.
Floor space 1500mm (60in.) bed 36 pitch chain	3810 x 3810mm (150in. x 150 in.)
Approx. net weight 1500mm (60in.) 36 pitch chain (6 heads) 4000 Kg. (9000 lbs.)	
Floor space 4000mm (158in.)bed 40 pitch chain	5720 x 4130 (225 x 165 in.)
Approx. net weight 4000mm (158in.)bed 40 pitch chain	6100 Kg. (13500 lb.)

Floor space 1500mm (60in.) bed 36 pitch chain	3810 x 3810 mm (150 x 150 in.)
Approx. net weight 1500mm (60 in.) 36 pitch chain (6 heads) 4000 Kg. (9000 lbs.)	
Floor space 4000mm (158 in.) bed 40 pitch chain	5720 x 4130mm (225 x 165 in.)
Approx. net weight 4000mm (158in.) bed 40 pitch chain	6100 kg. (13500 lb.)

DOUBLE ENDED DIMENSIONING AND PROFILING MACHINE MODEL WN

PRINCIPAL DIMENSIONS AND CAPACITIES.

Maximum distance across outside of chain tracks		1500mm (60in.)
	or	2500mm (102in.)
	or	4000mm (158in.)
Minimum distance across outside of chain tracks		150mm (6in.)

Nominal Beam Capacities with Forward Feeding Dogs.

Beam	Standard Pressure	Long Pressure	Extra Long Pressure
32 pitch	24in. (600mm)		
36 pitch	39in. (1000mm)	27in. (680mm)	18in. (450mm)
40 pitch	57in. (1450mm	45in. (1150mm)	36in. (900mm)

Maximum depth of timber accepted	150mm (6in.)
Maximum opening of top pressures	228mm (9in.)
Maximum overhang from chain edge	205mm (8in.)
Diameter of Saws	
Main column - front slide	350mm (14in.)
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Spindle diameter	30mm (1.1/4in.)
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Speed of head motors	7.5kW (10 h.p.) 3000 rev/min. (6000 rev/min with high frequency).
Feed Motor	2.2 kW (3 h.p.)
Speed of feed motor	750 r.p.m.
Traverse Motor	1.1 kW (1.1/2 h.p.)
Speed of Traverse Motor	1500 r.p.m.

Floor space 1500mm (60in.) bed 36 pitch chain	3230 x 3760mm (127 x 148in.)
Approx. net weight 1500mm (60in.) 36 pitch chain (6 heads) 4000 Kg. (9000 lbs.)	
Floor space 4000mm (158in.) bed 40 pitch chain	5720 x 4130mm (225 x 165in.)
Approx. net weight 4000mm (158in.) bed 40 pitch chain	6100 Kg. (13500 lb.)

INSTALLATION

Foundation bolts are not supplied with the machine. If the mill floor consists of 4 in. to 6 in. solid concrete, no special foundation is necessary. Rag type holding-down bolts may be used. Cut 6 in. square holes in concrete for bolts. Run in liquid cement when machine has been levelled.

Clean protective coating from bright parts with cloth soaked in paraffin, turpentine, or another solvent.

See foundation drawing supplied separately.

It is essential that the machine is connected to a dust collecting system. The machine has a built-in outlet point for each head.

WIRING DETAILS

The motors and control gear have been wired in before despatch. All that is required is to connect the power supply to the isolating switch. Points to note when connecting to power supply:-

(1) Check the voltage, phase and frequency with those on the machine plate.

(2) Check that the main fuses are of the correct capacity in accordance with the machine name plate.

(3) Connect the incoming supply leads to the appropriate terminals.

(4) Check that all connections are sound.

(5) Check that the spindle rotation is correct (start feed; from front of machine the chain track should rotate clockwise). Reverse any two of the line lead connections of the incoming supply to reverse rotation.

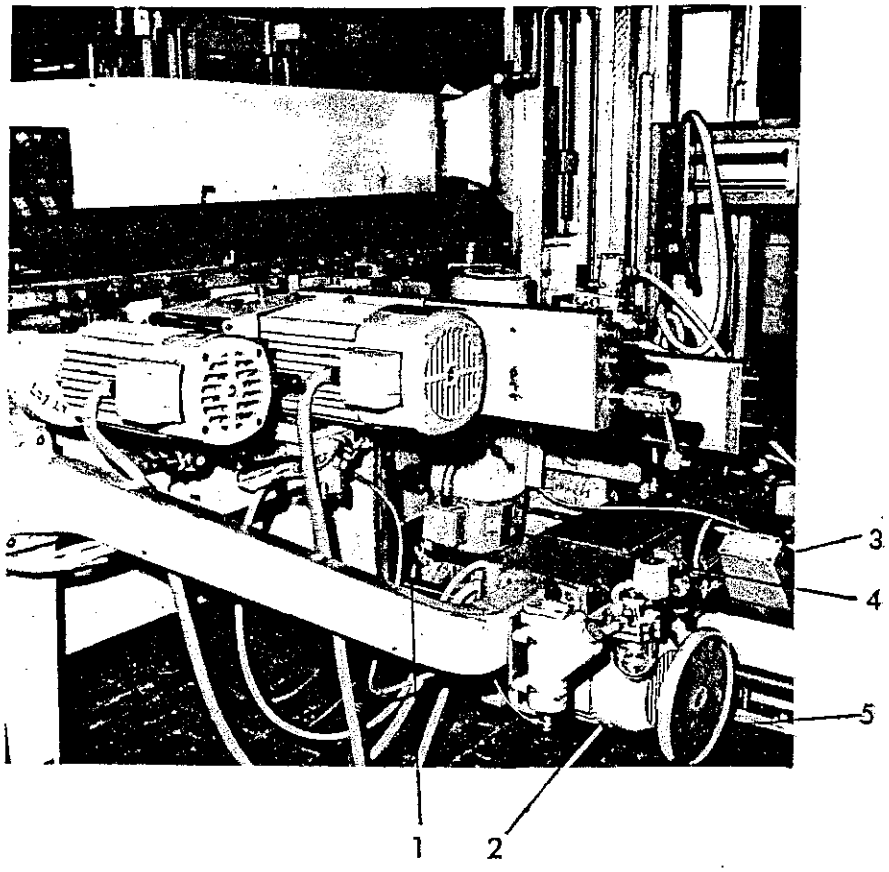
PNEUMATICS (TO SPECIAL ORDER)

The pneumatic equipment is fitted and tested before despatch. All that is required is to connect an air pipe to the filter unit, located under the front of the feedworks. The regulator on this unit should be set to read 80 p.s.i. on the gauge.

The lubricator on this unit MUST be filled with Mobil Almo No.1 oil

TRAVERSE UNIT

The power traverse to the adjustable beam is provided by means of a rotating nut and fixed tensioned lead screw (1) through chain and sprockets and a 1.1/2 h.p. motor (2) control of the power traverse to the adjustable beam is by selector switch (4). Final positioning should be carried out manually by the handwheel (5). One revolution of the wheel being equivalent to 1/4in. horizontal movement. At 4 in. from the end of maximum and minimum settings the power traverse is automatically switched off - hand traverse should then be employed. A steel measuring rule complete with illuminated magnifier (3) is provided to facilitate setting up.

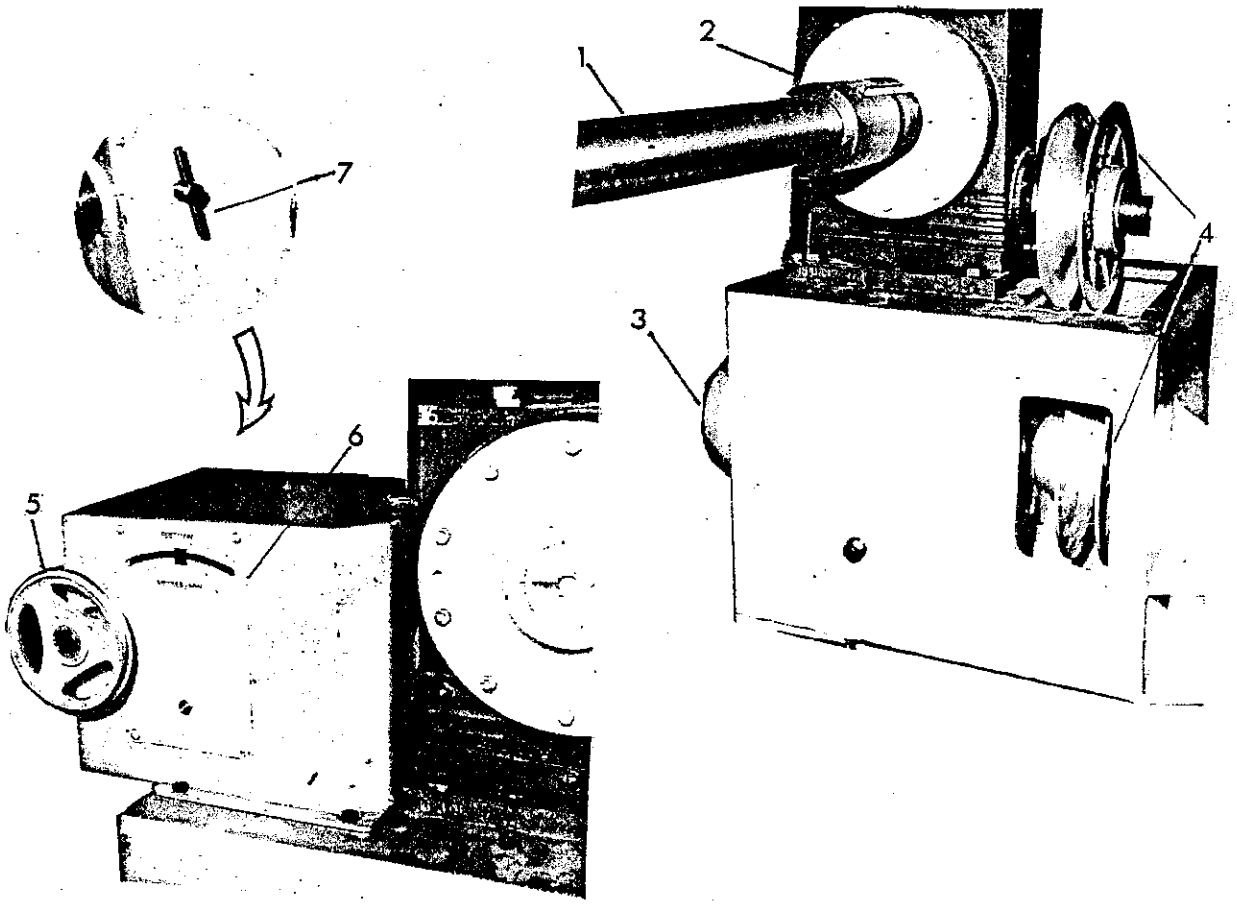


FEED UNIT

The feed chains are driven via a 3 in. diameter double keyway shaft (1) from the end of the bed through a worm reduction unit (2) and a 3 h.p. totally enclosed fan cooled brake motor (3) and double expanding cone pulleys (4).

The feed speed is adjusted by means of handwheel (5). Clockwise movement of the handwheel decreases the speed and counterclockwise movement increases the speed. A suitable engraved speed indicator plate (6) is provided.

The handwheel is locked in position by locking screw (7).



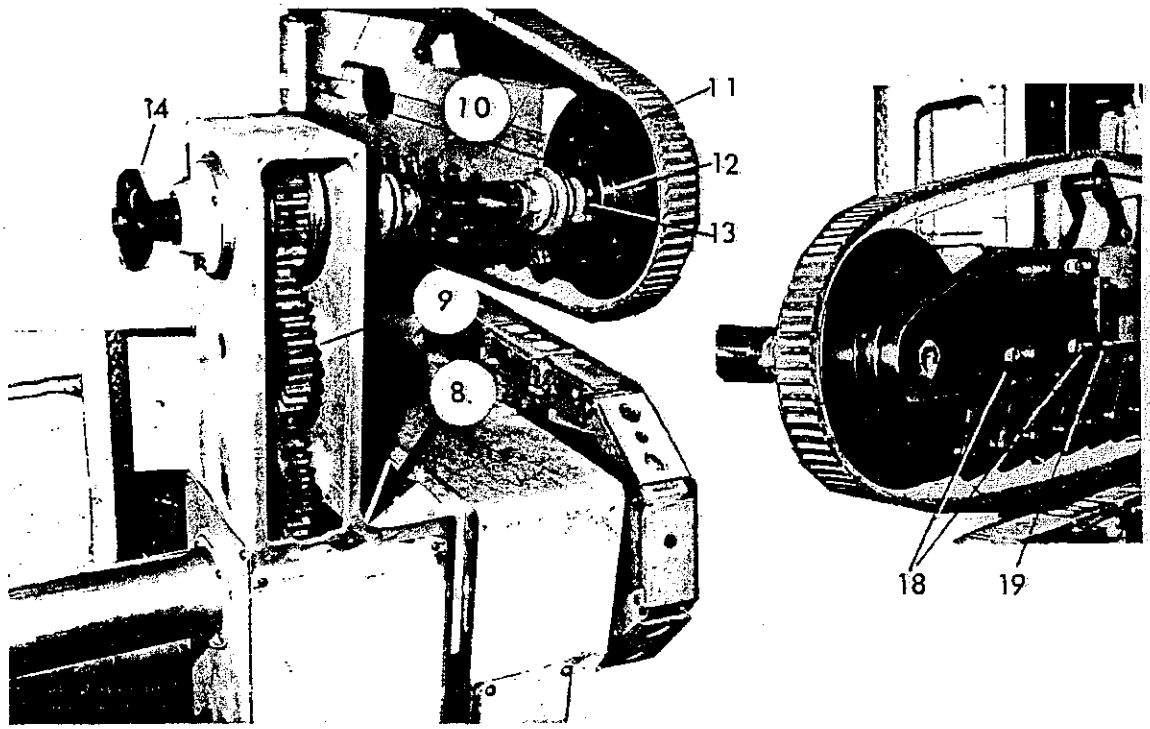
IMPORTANT:- THE FEED MOTOR MUST BE RUNNING BEFORE ANY SPEED CHANGES ARE MADE.

OVERHEAD PRESSURES

There is a choice of pressures, these can either take the form of a caterpillar type consisting of rubber pads fitted to a specially designed block chain running between guides on the cast iron beam or continuous vee belts. The caterpillar type is not power driven, it derives its momentum from the tractive force generated by the timber being driven through the feed chains.
It is unnecessary to re-tension this type after the machine has left the works.

The alternative type of pressure consists of a continuous vee belt running over individually sprung rollers. The vee belt is power driven from the feed drive shaft (8) via a train of gears (9) and a universal coupling (10) to the driving pulley (11) at the pressure beam. The speed of the belt should be set about 5% in advance of the feed track speed. The two flanges (12) are threaded. To alter the position of the belt in the vee groove - unscrew the locking rings (13) and rotate the pulley flanges (12) by equal amounts in opposite directions. To increase the speed of the belt its position should be raised in the groove - when the speed has been fixed, the locking rings (13) should be re-locked to hold the pulley flanges in position.

The drive from the gear box can be disconnected from the universal joint drive by turning clutch knob (14) in a counterclockwise direction. Should the vee belt require re-tensioning it will be necessary to remove the guard and adjust the keep plate (quadrant) by undoing nuts (18) and tightening bolt (19) until the required tension is achieved.

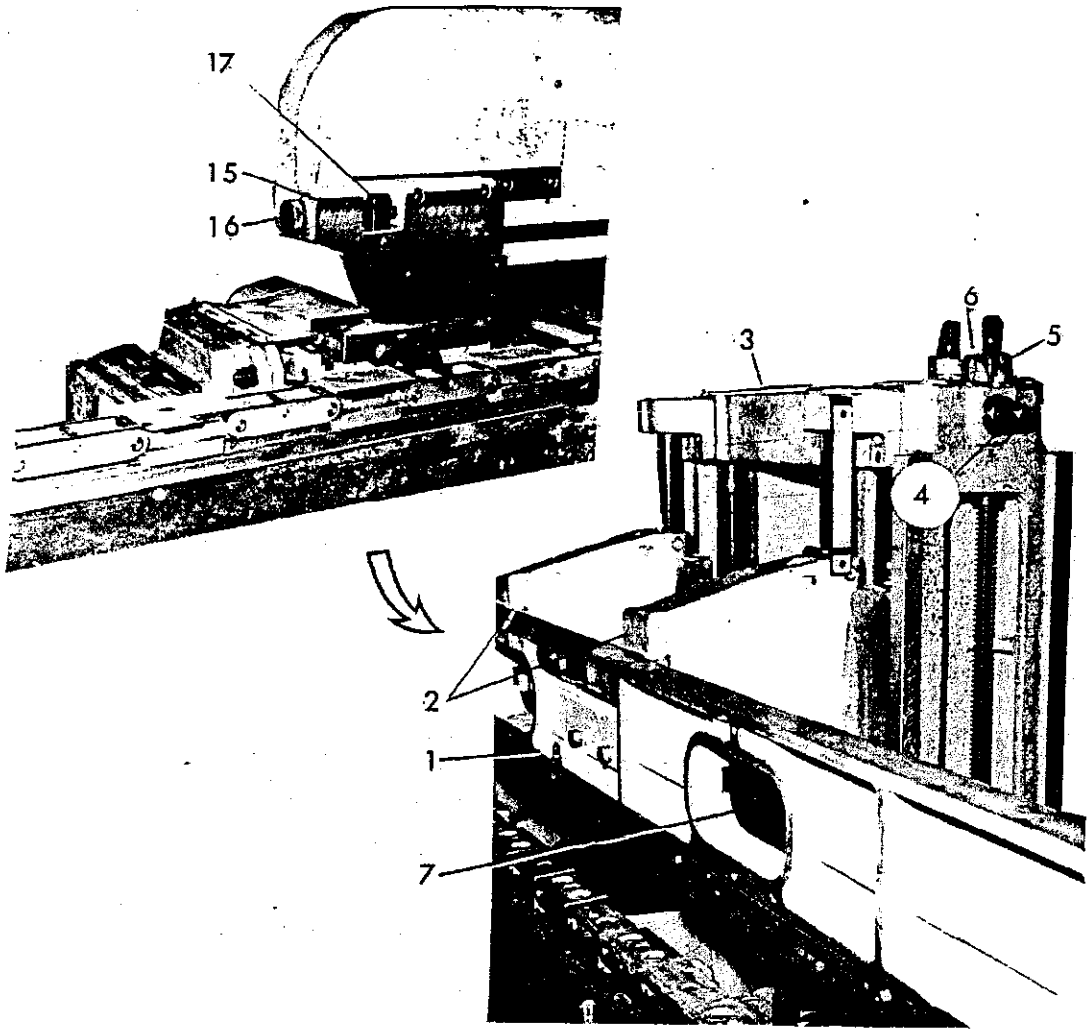


OVERHEAD PRESSURES (CONT).

The beams (1) for both types of pressures are mounted on substantial cast iron supports (2) fitted to the headstock column (3). The rise and fall of the pressure beam is carried out by the raising or lowering screw from square (4) and is locked by lever (5). A scale (6) indicates the height of the pressure beam. The beams also have cored holes (7) at each head position, giving the facility for horizontal spindle operation with the tools on the inside of the beams.

Both types of pressures are fitted at the infeed end of the beam with removable spring loaded hold back shoe units (15).

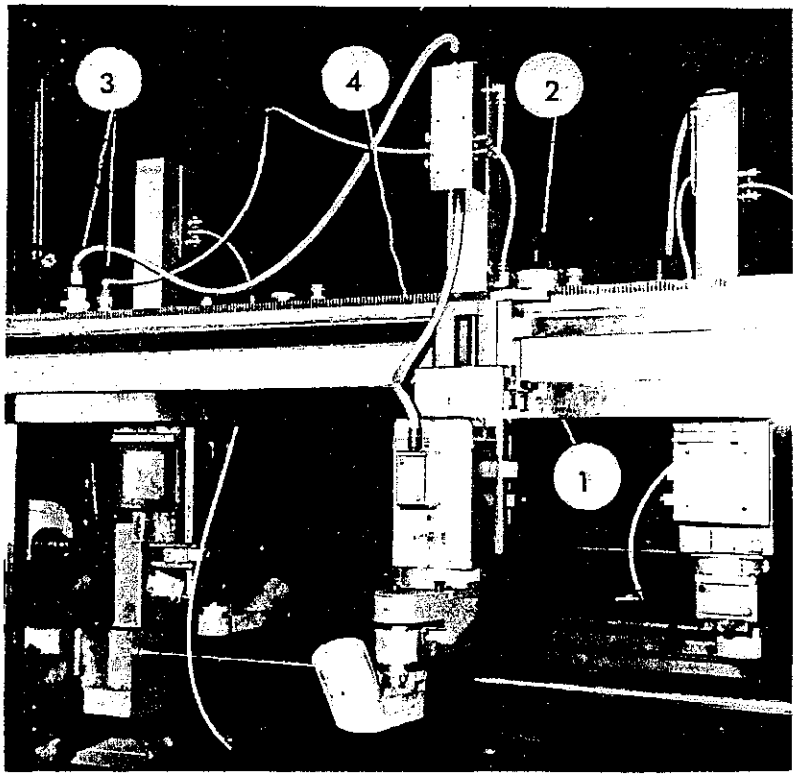
The pressure can be adjusted by means of the knurled screw and locknut (16) fitted at the front of the shoe unit. The hold back shoe can be lifted out of contact with the work piece by adjusting the square headed screw (17).



OVERHEAD BEAM

When an overhead beam (1) is fitted (only on 1500mm (60in.) or 2500mm (102in.) machine) it is normally carried at the rear of the machine - a substantial vee slide provides means for carrying a variety of auxiliary spindles - the latter are positioned in the horizontal mode by hand ratchet spanners (2) which work in conjunction with a fixed rack. (4)

An adequate supply of fixed sockets (3) are fitted which provide both the electrical and pneumatic services.



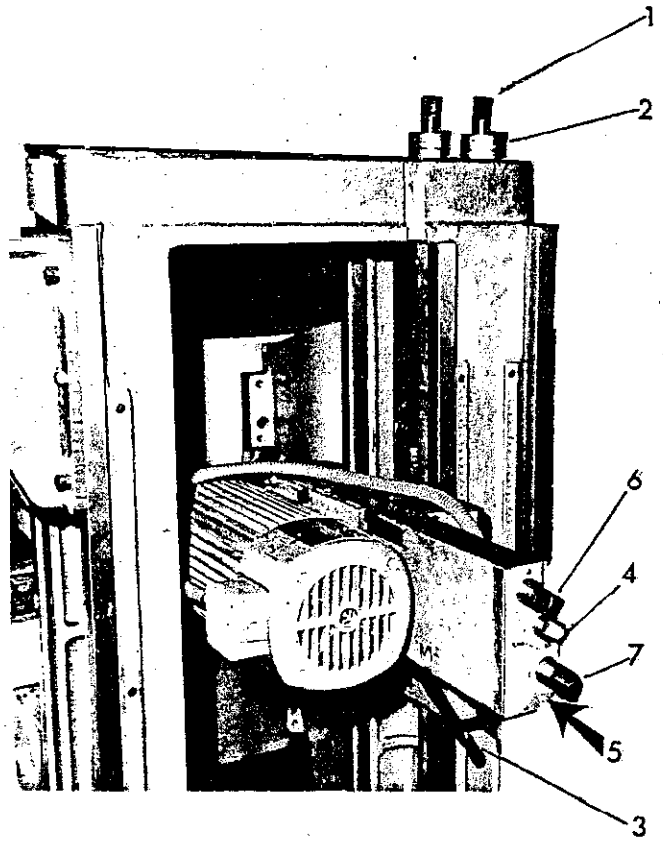
HEAD UNITS

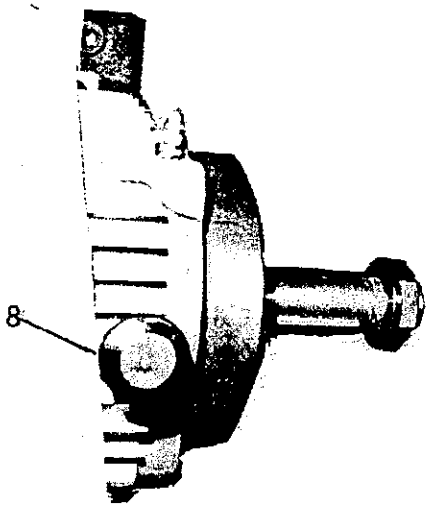
All head units on the main columns are provided with horizontal and vertical adjustment and can cant through more than 180°.

The rise and fall of the head units is carried out by means of square (1) attached to which is a circular scale (2) to give an indication of the amount of movement. one revolution gives 6mm (1/4in) head movement. Nut (5) locks the head in position. Horizontal movement is carried out by means of square (4) and the movement locked by lever (3).

To cant the head turn the adjusting square (6), square (7) is the lock for this movement, turn in a counter clockwise direction to release the lock. Turn clockwise to lock.

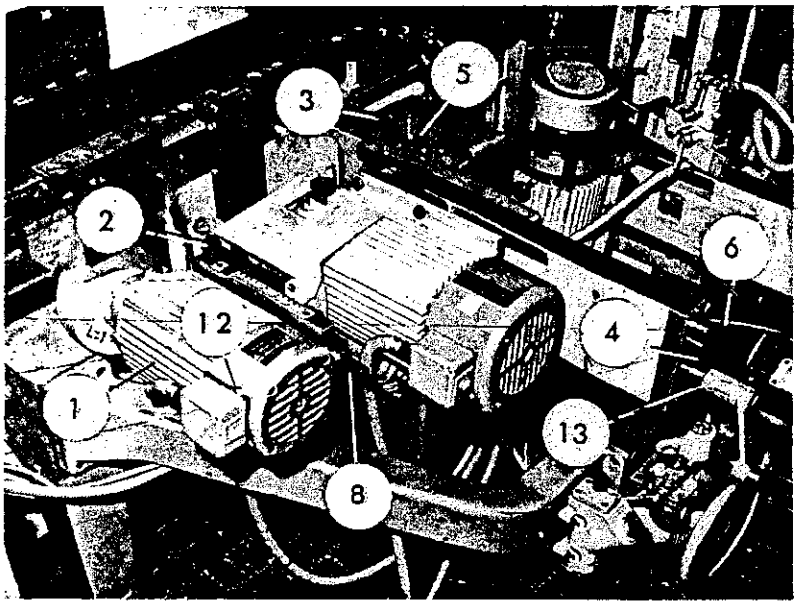
A spring loaded plunger (8) is located in the front motor cover to provide a means of holding the spindle whilst removing or re-fitting cutterblocks.

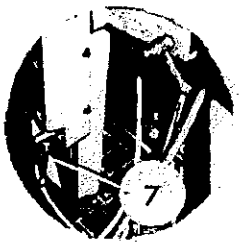


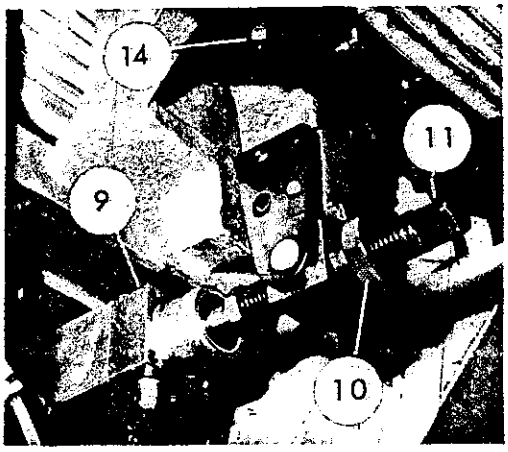


COMBINED HOGGING SAW AND SCORING SAW UNIT

A 2 h.p. 3000 r.p.m. (6000 r.p.m.on high frequency) scoring saw (1) is mounted directly on the spigot of the Hogging Saw (2) which is fitted to an auxiliary column (3). The latter is provided with horizontal, vertical and canting movements from square (4), (5) and (6) and are locked into position by nuts and or handles (7) and canting movement by square (13). The scoring saw moves in unison with the Hogging Saw Unit. More finite adjustment of the scoring saw motor can be made for horizontal movement by square (8) and locked by nut (14) and in the vertical mode by adjusting the amount of extension to the jump piston (9). This control can be effected by square (11) and knurled locking nut (10). A Tommy Bar hole (12) is located in the front of the hogging saw motor cover to provide a means of holding the spindle whilst removing or refitting the saw. To remove or re-fit the saw on the scoring unit a spanner should be used in conjunction with the parallel flat sides which are formed by two machined faces at the spindle end of the saw adaptor unit.







SCORING SAWS - (alternatives)

A. Fig. a — A non tilting scorer saw can be fitted directly on the chain beam in front of the auxiliary column. This can be adjusted for horizontal and vertical movements from squares (1), (2) and locked by nuts (3) and (4).

B. Fig. b — A Universal Tilting Scorer Saw can also be fitted directly on the chain beam in front of the auxiliary column. This can be adjusted in the horizontal and vertical axes and canting up to 45° the latter is set by loosening pivot nut (1) and positioning by means of a hand lever (2) and relocking by pivot nut (1). Lateral adjustment is by square ended screw (3) and by locking nut situated at the base of the slide. Vertical adjustment is by rise and fall square ended screw (4) (underneath) and by locking screw (5) (in slide) (6) is the pivot dead stop mounted on the top surface of the swing. Lateral movement has a 150mm (6 in.) scale (7) and a Vernier collar (8) on square in 0.5mm (.005 in.) segments. The canting quadrant (9) is graduated in degree increments from 0-45°.

C. The tilting scorer saw can also be provided with a vertical jump operation actuated by electro-pneumatics.
The datum for the centre line adjustment of the spindle is adjusted by the square (11) on the piston rod extension and locked by knurled nut (10).
See figure on previous page.

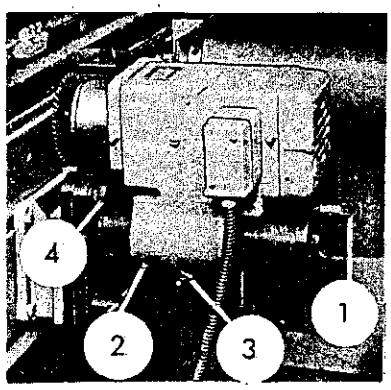


Fig. a

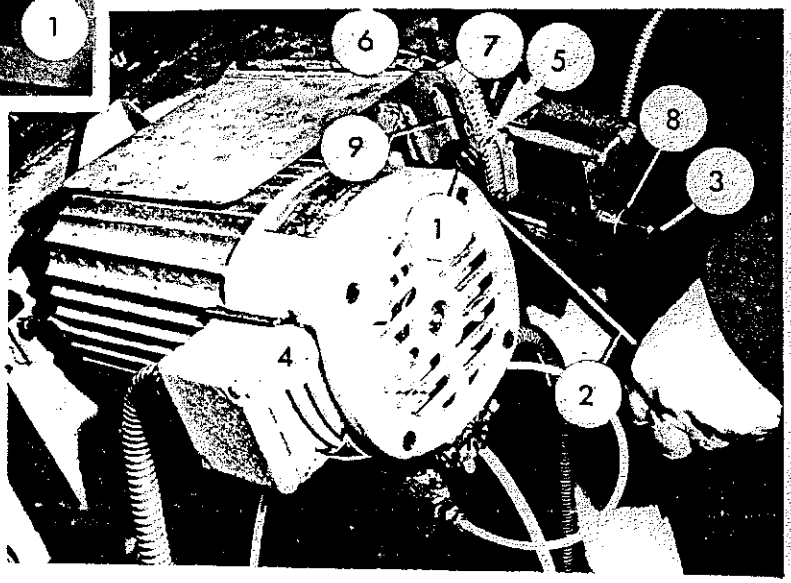
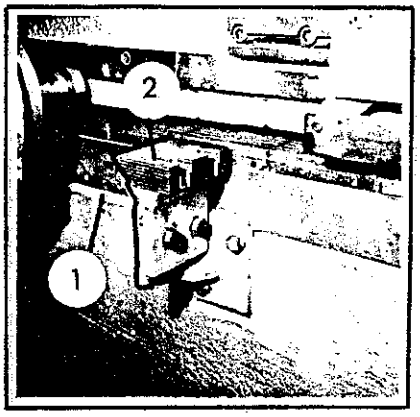


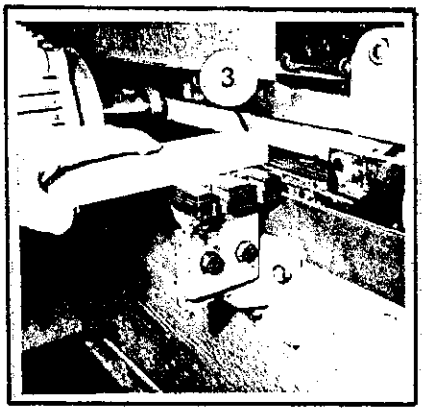
Fig. b

ANVIL

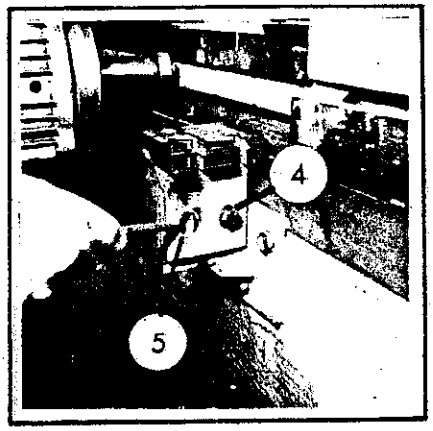
The anvil (1) should be adjusted so that the top surface of the Permali support (2) is flush i.e. level with the top of the feed track.



The straight edge (3) indicates that the track and the top of the anvil are in line and level.

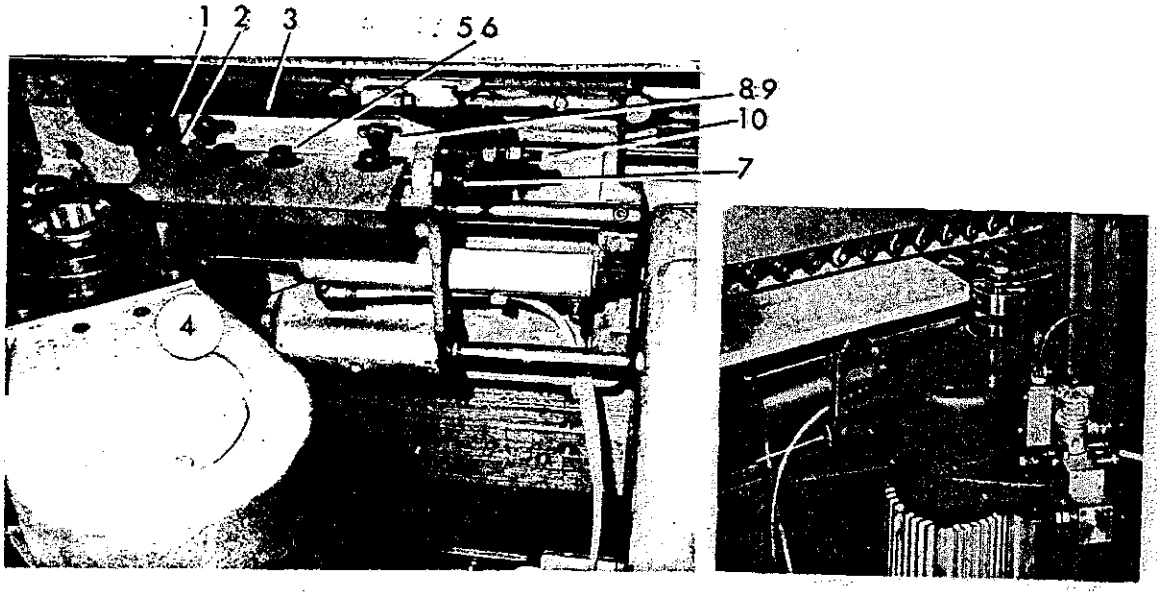


Any adjustment can be carried out by releasing the two hexagon headed screws (4) and either raising or lowering the anvil about the two elongated holes (5).

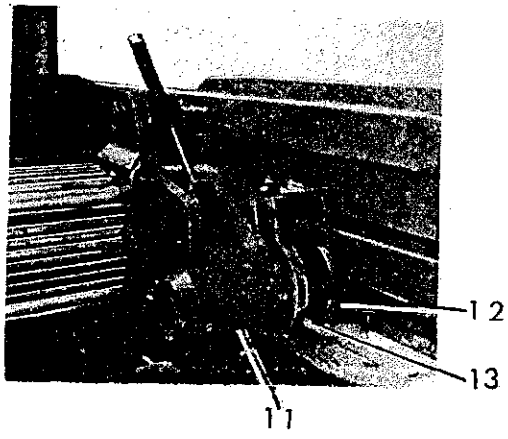


RELISHING HEAD

The Corner Rounding attachment (1) is designed for automatically producing rounded corners on piece parts. It consists of a template (2) carried on a movable carriage (3) the latter is actuated by a double action pneumatic cylinder (4) the return action of which is operated by a trip mechanism which is triggered by an air operated switch carried on the inside of the beam, this works in conjunction with the dogs carried on the moving chain. The fixing of the template is adjustable via three elongated slots (5) secured by bolts (6) and adjusting stud (7). Adjustment of the carriage is also provided about the slots (8) again held by bolts (9) and adjusting studs (10).

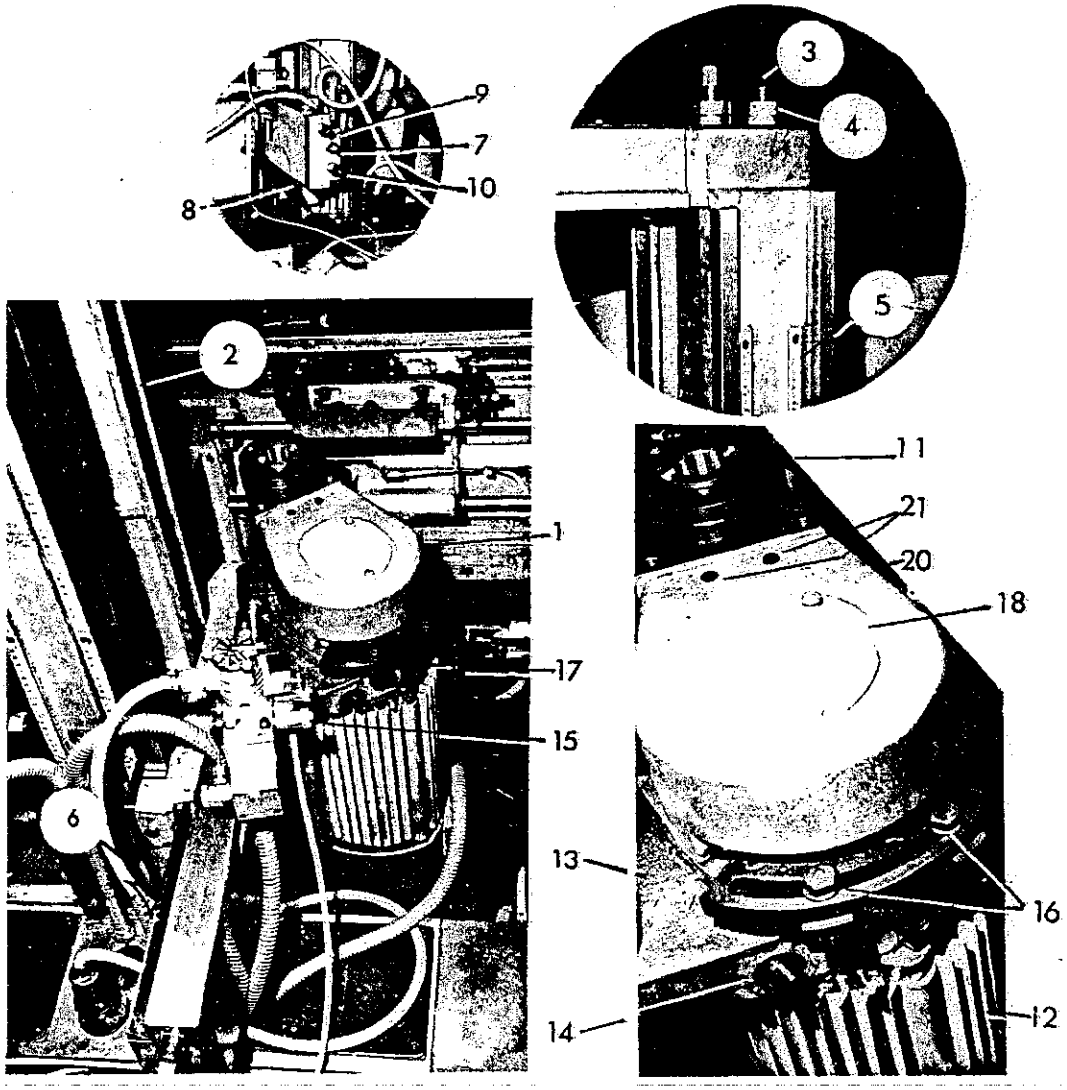


The relishing unit can also be employed as a Lip trimming attachment, as such the unit is mounted in a horizontal position (11), a roller (12) is fitted to the auxiliary spindle (13) which enables the head to be used as a floating head.



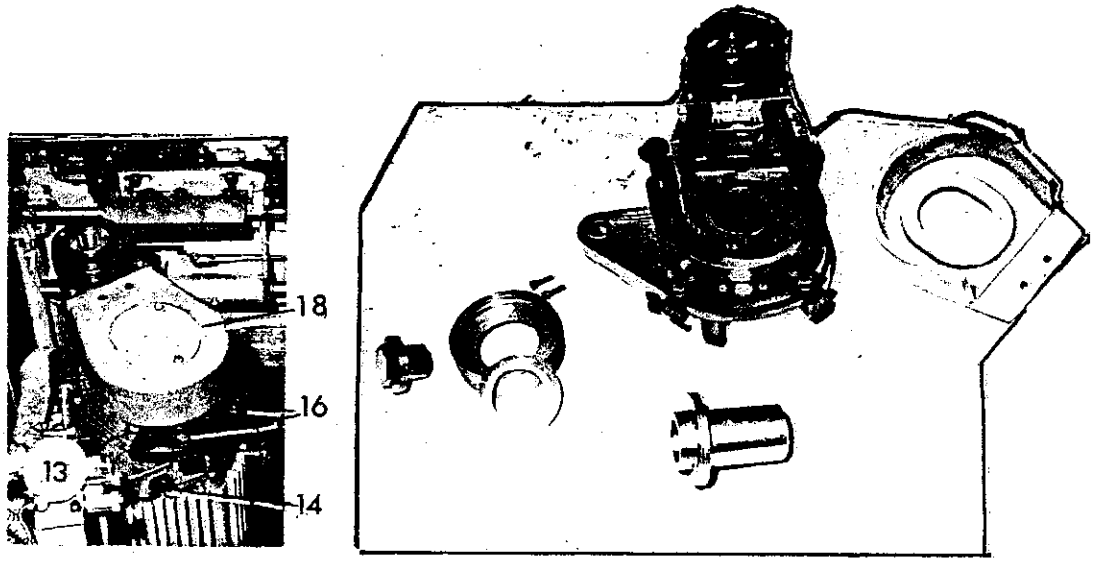
THE RELISHING HEAD (with pneumatics)

The Relishing head (1) is mounted on the outer face of the headstock mounting column (2) and is provided with vertical adjustment from screwed square (3) attached to which is a circular scale (4) which gives an indication of the amount of movement one revolution gives 6mm (1/4 in.) head movement. Total movement of 630mm (25 ins.) is indicated on rule (5). The vertical movement is locked by nut (6). Horizontal movement is carried out by means of square (7) and the movement locked by lever (8). Canting movement of the head is effected by turning the adjusting square (9), square (10) is the lock for this movement. Turn in a counterclockwise direction to release the lock. Turn clockwise to lock.
The relishing head consists of a belt driven auxiliary spindle (11) from a 5 h.p. motor (12) adjustment about the motor spigot (13) is provided and clamped by square ended locking screw (14). A pneumatic cylinder with integral solenoid (15) provides radial movement, the cutter being regulated by adjustable stops (16).
A spring loaded plunger (17) is provided in the motor cover to provide a means of holding the spindles whilst removing or refitting the cutters.
Air pressure for the pneumatics should be regulated to 30 lb./ins.

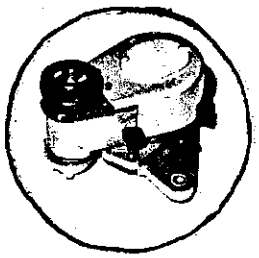


RELISHING HEAD (without pneumatics)

If pneumatics are not required the relishing unit can be supplied as a separate unit, it can either be used in the vertical or horizontal mode and can be accommodated either on the left or right hand side of the main column in the bottom position. To fit the unit to the head motor swing open cover (18) and thread bore of the unit over the end of the motor spindle so as to engage keywayed sleeve pulley, locknut and locate drive belt in the appropriate vee section. Close the cover (18) and secure the cover holding screws. The unit can now be rotated about the motor spigot (13) to the required position. Tighten the square ended locking screw (14) to hold the unit in the selected position. Radial adjustment being provided by adjustable stops (16).



Relishing Unit Dismantled.

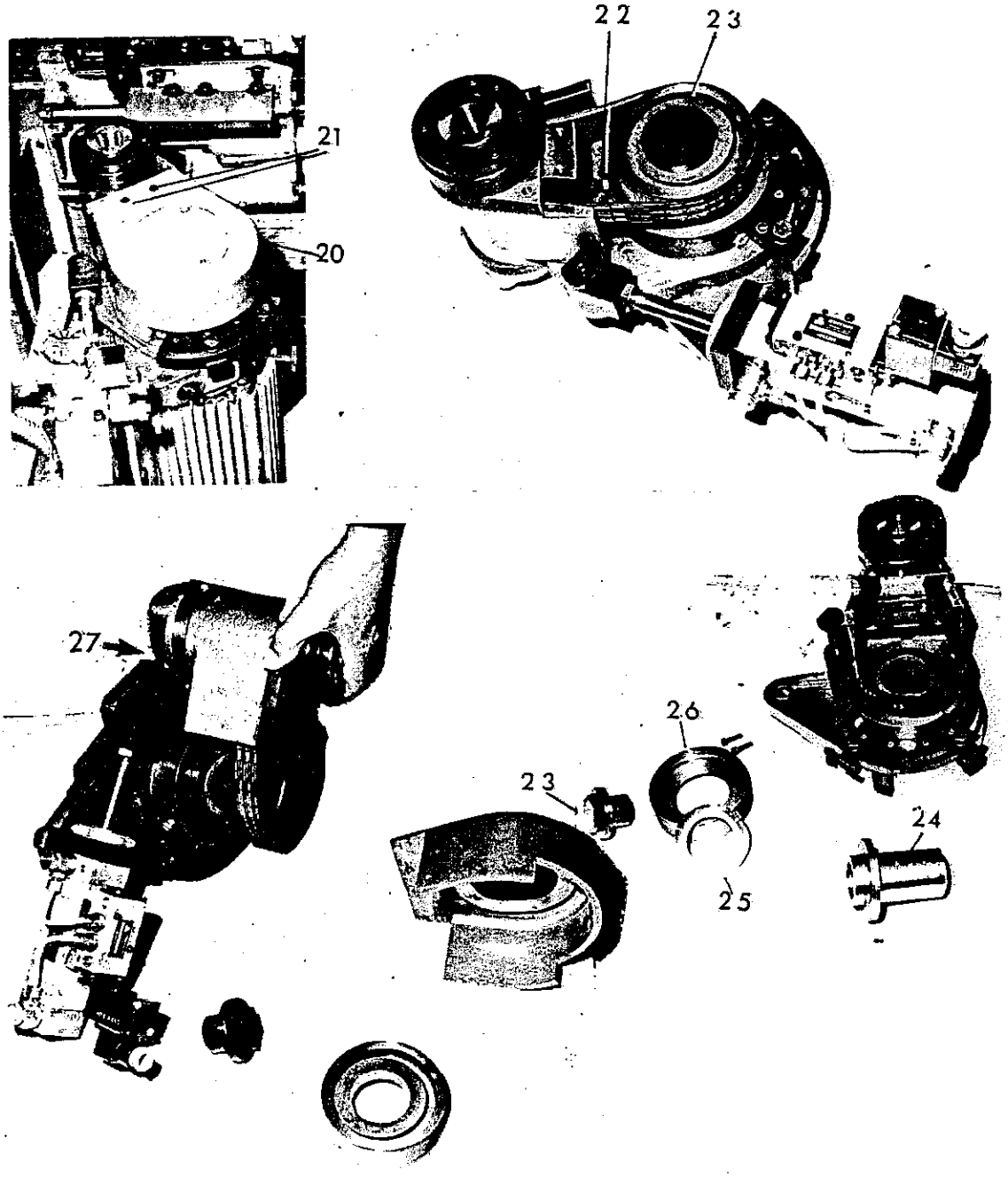


Relisher Unit minus spring tensioning equipment.

RELISHING HEAD (continued)

TO CHANGE THE DRIVE BELT

Remove belt guard (20) by loosening two Allen screws (21) and loosen belt tensioning screw (22). Remove extended locknut (23) and withdraw from the driving shaft the keywayed sleeve (24) locking cone (25) and motor pulley (26). Remove two nuts (27) and then remove the complete spindle assembly. The cutter spindle can be then removed permitting easy replacement of the belt. Re-assemble in the reverse order.

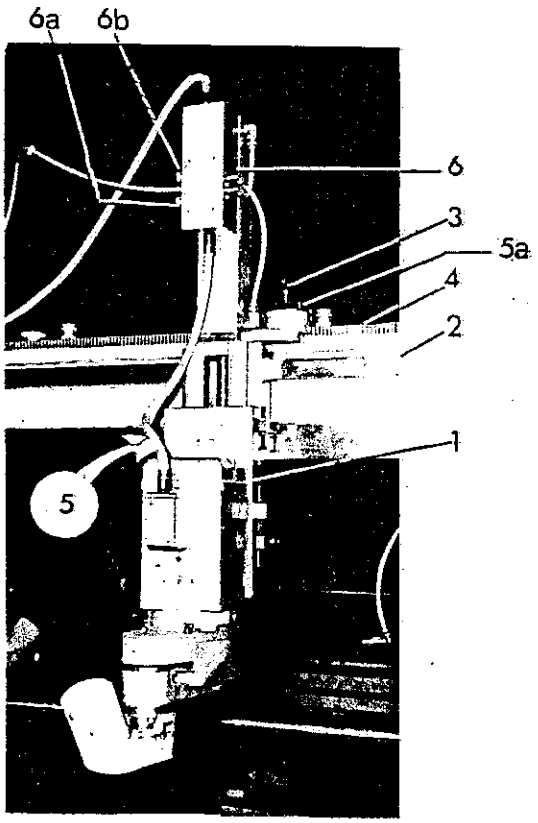


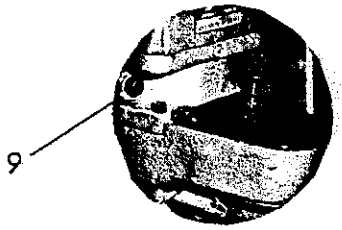
JUMP DADO UNIT

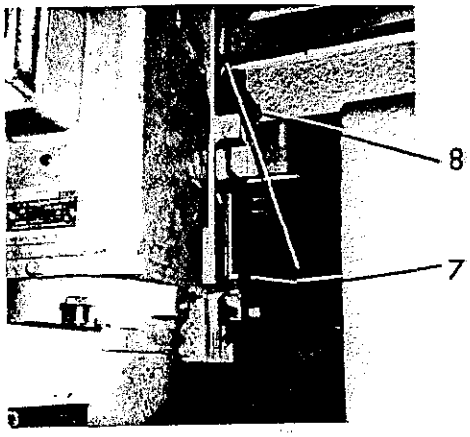
The jump dado unit is a self contained motorised unit running at either 7500 r.p.m. and/or 15000 r.p.m. It comprises of a belt driven auxiliary spindle driven from a 2 h.p. 3000 r.p.m. (4 h.p. 6000 r.p.m. motor when connected to a high frequency service.) The motor unit is mounted on a horizontal slide (1) which is attached to the overhead beam (2). Longitudinal movement along the beam is provided by square (3) which engages a toothed sprocket on the rack (4), the movement is locked by stud (5) and clamp plate (5a).

Vertical movement is provided by an electro-pneumatic cylinder assembly (6). The movement is limited by two square headed stop screws (7) and (8) fitted with locknuts. The upper stop screw (8) has lateral movement (provided by an elongated slot) this enables the stop to be disengaged from the vertical slide, thus permitting the motor unit to be raised sufficiently to pass over the pressures.

The rate of vertical traverse is governed by the two bleed valves (6a) and (6b). The radial position of the spindle can be changed by releasing the spigot locking bolt (9).

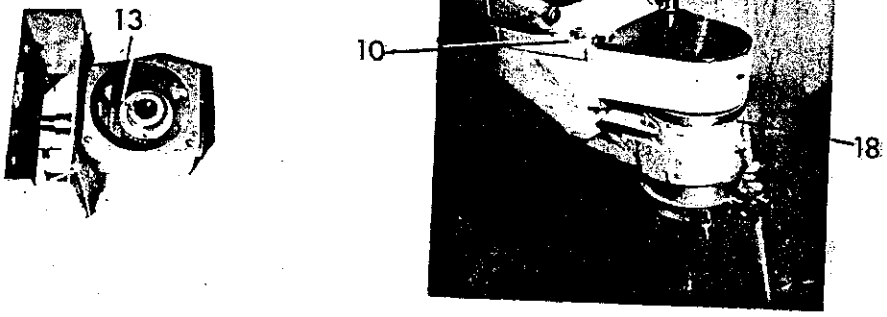




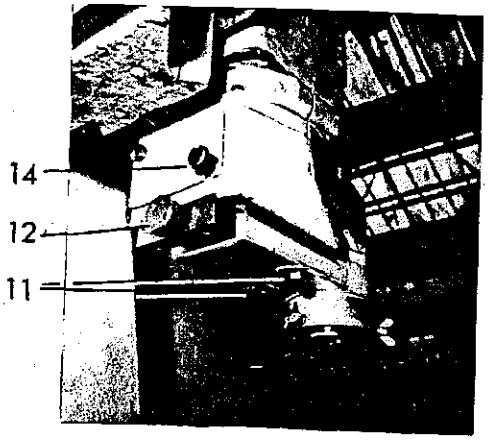


JUMP DADO UNIT (continued)

Alternatively the dado unit can be fitted with a horizontal spindle, this is effected by releasing the four cap head screws (10), it will also be necessary to remove the belt by loosening the two clamping screws (11) and belt tensioning screw (12). Access to the belt is obtained by releasing the knurled screw (14) at inspection cover and pivoting the cover away. It should now be possible to remove the unit from the motor spigot. Fit bevel gear (13) where necessary which is supplied loose with horizontal jump dado unit. Then fit the latter to the motor spigot and reverse the procedure as explained for the removal of the vertical unit.



Jump Dado with Horizontal Spindle

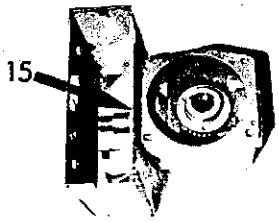


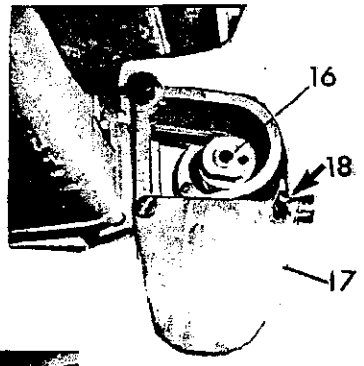
JUMP DADO - CUTTER EQUIPMENT FACILITIES

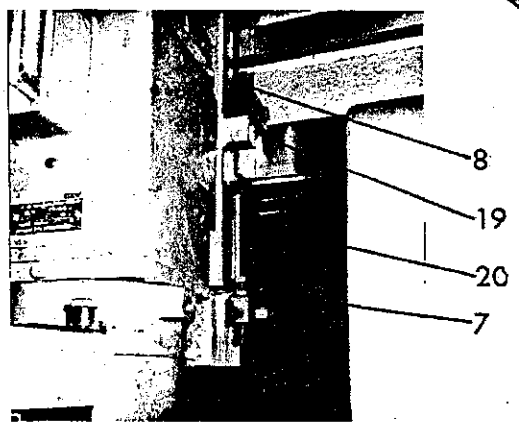
The horizontal dado unit is provided with a 30mm (1.1/4in.) diameter keywayed shaft and the cutters are held securely in position by locknuts. To facilitate the fitting or removal of cutters, the spindle is provided with a tommy bar hole (15), access to which is through the front bearing cap.

The vertical spindle is provided with a collet and draw bolt facility (16) for holding the cutters in position. Access to the head of the draw bolt is gained by swinging the cover (17) to one side. Again the spindle is provided with a tommy bar hole, access to which is through the front bearing housing (18).

Note:- Where the jump action is not required the pneumatic cylinder should be disconnected from the air supply. The screws (7) and (8) should be adjusted together in conjunction with dead stop (19) on slide (20). Adjustable stops are provided to facilitate controlled vertical movement.







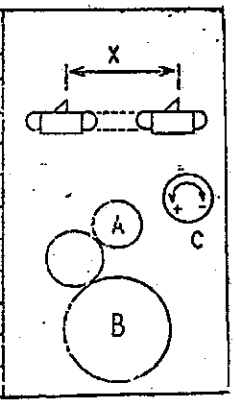
THE TIMING UNIT

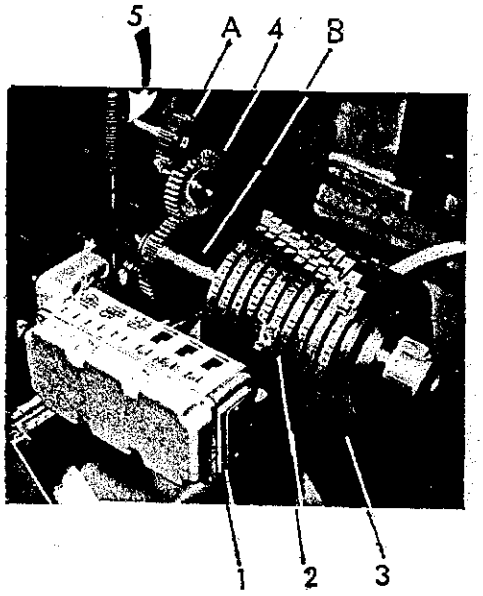
The sequence control of the 'jump' operation of relishing head, jump dado heads and other cyclic functions are controlled from a timing unit mounted on the outside of the beam. A bank of twelve switches (1), operated by trip cams (2) mounted on an assembly of steel discs (3) is fitted with a train of gears which are drawn from the back shaft (5). Gear train (4) comprises of driving gear (A) on back shaft (5) a fibre intermediate gear and the cam shaft gear (B).
The employment of the timing unit involves the selection of gear ratios to suit the track speed so that one revolution of the discs gives the equivalent ratio of distance of the following track movements.

36 pitch beam	32 in.	48 in.	72 in.	96 in.	144 in.
	800mm.	1200mm	1800mm	2400mm	3600mm
40 pitch beam	32 in.	40 in.	64 in.	80 in.	160in.
	800mm	1000mm	1600mm	2000mm	4000mm.

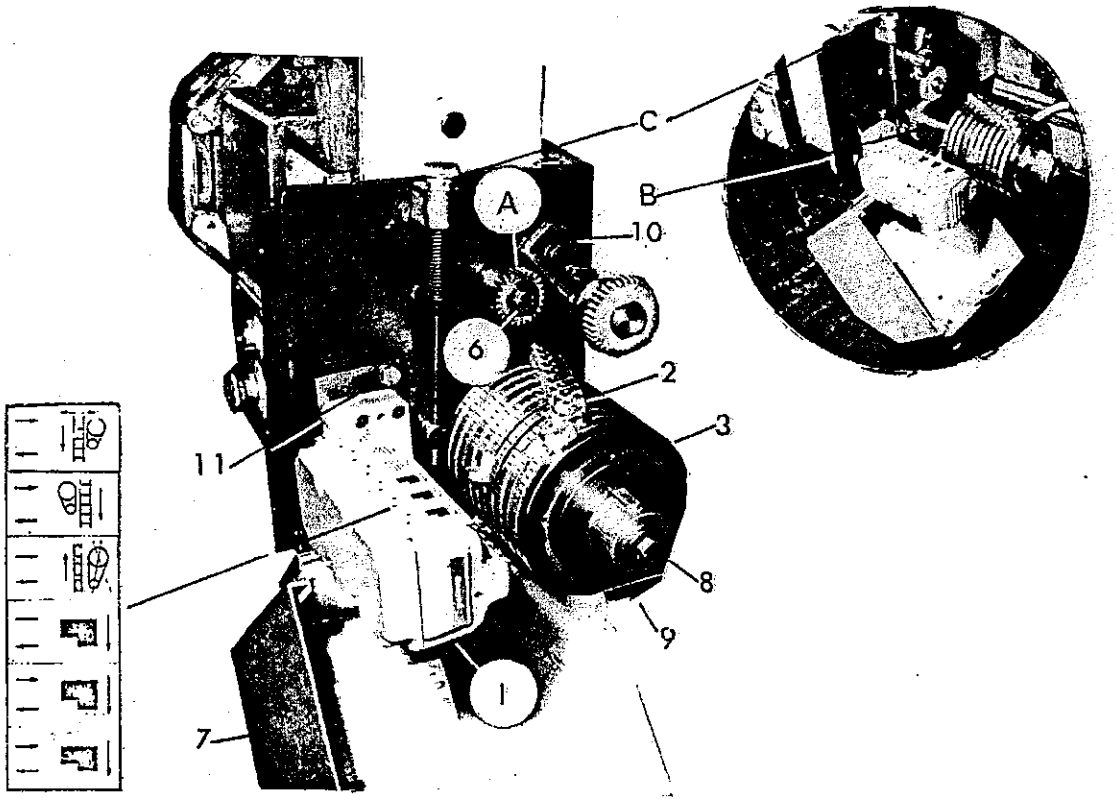
Gear Ratio Tables

X		A	B	C	
INS	MM			INS	MM
32	813	48	48	·089	2·26
40	1016	48	60	·111	2·83
48	1218	36	54	·133	3·36
64	1620	24	48	·178	4·52
72	1829	24	54	·200	5·08
80	2032	24	60	·221	5·64
96	2438	24	72	·266	6·77
28	3251	18	72	·356	9·02
144	3658	18	81	·40	10·2
160	4064	18	90	·445	11·3





The above table shows 'X' movement of track between dogs 'A' and 'B' the ratio gears in number of teeth.

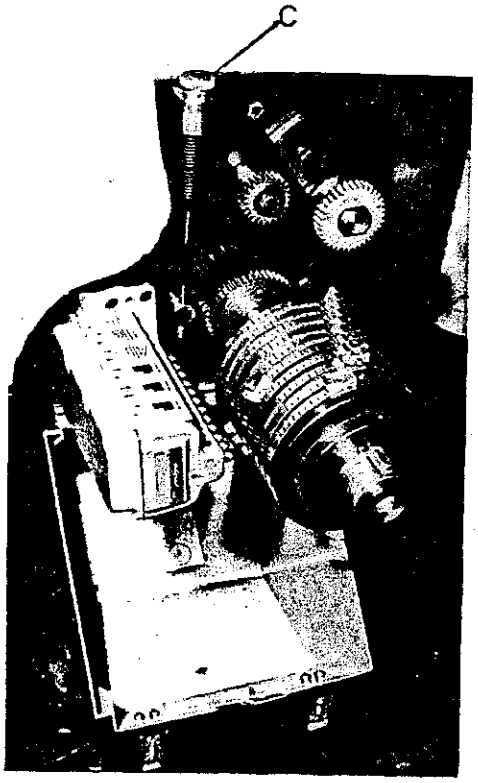


To change the gear ratios
Open the timing unit cover (7). Refer to the gear ratio tables, select the two gears required, if necessary fit the drive gear (A) and cam shaft gear (B) as follows:-
To fit the cam shaft gear (B) slacken the intermediate gear bracket screw (10) to allow the fibre gear to be moved out of mesh, unscrew the retaining bolt (8) and withdraw complete the timing cams (9) and slide off the cam shaft gear (B) replace with the chosen gear, then slide timing cam drum back into position and relock in position by bolt (8). To fit back shaft driving gear (A) remove screw and washer (6) and remove gear (A) from the shaft and replace with the selected gear (A) replace screw and washer (6) and lock in position. Re-mesh the fibre intermediate gear with gears (A) and (B) and lock in position. Micro dial adjustment (C) allows for advancing or retarding the cycle of programmed events which is necessary when a change of track speed is made. Adjustment should be made as the track is set up.

Adjustment of the Trip Dogs.

Access to the trip dogs is attained by loosening Hexagon screw (11) and swinging the switch unit away from the trip dogs.
With the aid of a template (or actual workpiece) positioned on the track relative to the unit to be timed the 'IN' trip dog is moved into contact with the first switch roller. Move the track forward until the 'OUT' position is arrived at and the second trip dog so that it makes contact with the first switch roller. Move the track forward until the 'OUT' position is arrived at, and the second trip dog so that it makes contact with the second switch roller. This procedure applies to each machining sequence.

Advance and retard of the starting point of each step of the cycle. This can be achieved by turning the knurled knob (C) in the negative (clockwise) direction to advance and positive (counter clockwise) direction to retard.
The extent of advancement or retardation is indicated in the table shown under column C, each measurement being in terms of one revolution of the screw.



SILL SLANTING & ANGLED TRENCHING ATTACHMENT

General Description

The attachment consists of head units (top or top and bottom) on the front column slideways, arranged on ball bearing slides to have movement at right-angles to the main chain tracks. The movement is operated by cams and the bottom head pressurised against the cam by an air cylinder. Where two heads are fitted, the top head is connected to the bottom by a rigid bar causing the heads to move together.

Angles of up to 25° can be accommodated and the unit used for trenching dadoing or cutting off.

General Capacity.

For sill slanting the maximum width of material is influenced by the angle of cut, the width of trench and the depth of cut. Generally width of 5in. to 6 in. can easily by accommodated and wider than this can be cut at the smaller angles.

Preparation of Template.

For each job a template should be prepared in lin. thick plywood or similar material, generally as shown in figure 1.

Setting of Cutterheads.

The template is placed on the track against a pair of dogs and positioned alongside the cutterheads. The cutterheads are set to the correct angle in line with the taper edge on the template. The overhang from the track is determined principally by the clearance of the cutterheads and guards between the track and the column. Once determined, the template is marked at the track edge as shown in figure 2.

Producing the Cam

A blank cam disc 12in. diameter in 3/8in. thick to 1 in. thick material (plywood, linen or paper based phenolic laminate etc.) is prepared and mounted on the cam spindle, as shown in figure 3. The template previously prepared is again fed into the machine with the mark again on track edge. The template following finger is fixed to the guard mounting ring and placed vertically in line with the cutter spindle. The template is fed into the machine and stopped in the position shown in figure 3, with the leading edge opposite the spindle.

The cam follower is withdrawn and replaced by cam scriber, which is allowed to rest on the top surface of the cam as shown in the bottom righthand diagram in figure 3.

Air pressure is removed from the pneumatic cylinder and the head pressed until the finger is in contact with the cam as shown in the upper left-hand diagram in figure 3.

The track is then started and with manual pressure causing the head to follow the profile of the template, the cam profile is marked out by the scriber between positions X and X as shown. The remaining part of the cam is marked by a blend line between point X and X.

The cam blank is removed and shaped to the scribe line and replaced.

Operation

The cam follower is replaced, the template following finger removed and the heads and guards set up for operation. Air pressure is applied to the pneumatic cylinder bringing the cam follower in contact with the cam. Components are fed through by the dogs and will be cut to the angle on the template as now reproduced by the rotating cam.

Final positioning laterally of the grooves can be adjusted by the fine adjustment on the cam follower location and movement limiting stops on the head can be utilized to restrict the movement of the heads if necessary.

Conventional Use.

When required, the heads can be utilised for normal purposes such as scoring, cut-off sawing, tenoning etc. For these purposes, air presssure is removed from the pneumatic cylinder and the bar connecting the two heads is released. Each head has independent screw adjustment by rotating the block from the rest position stud to the operating position stud. With the heads lined square with the track, they can be utilised for normal purposes.

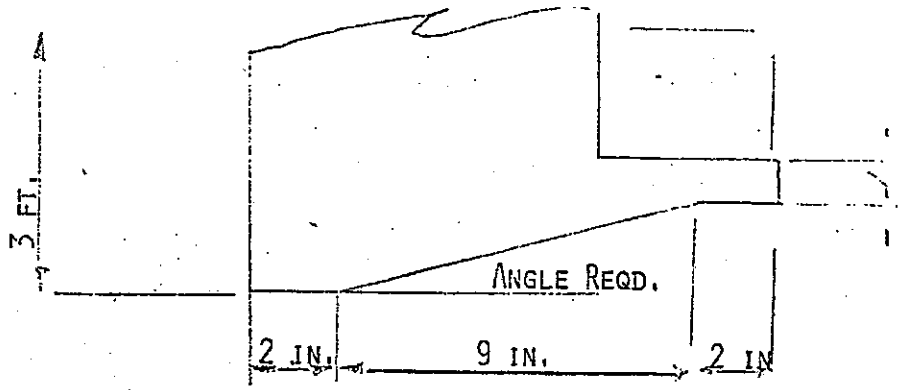


FIG. 1 ------ TEMPLATE

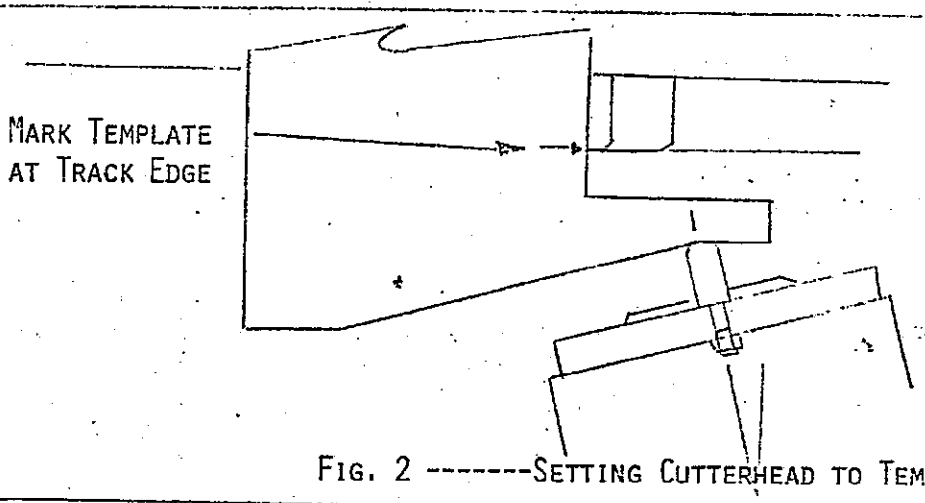


FIG. 2 -------SETTING CUTTERHEAD TO TEMPLATE

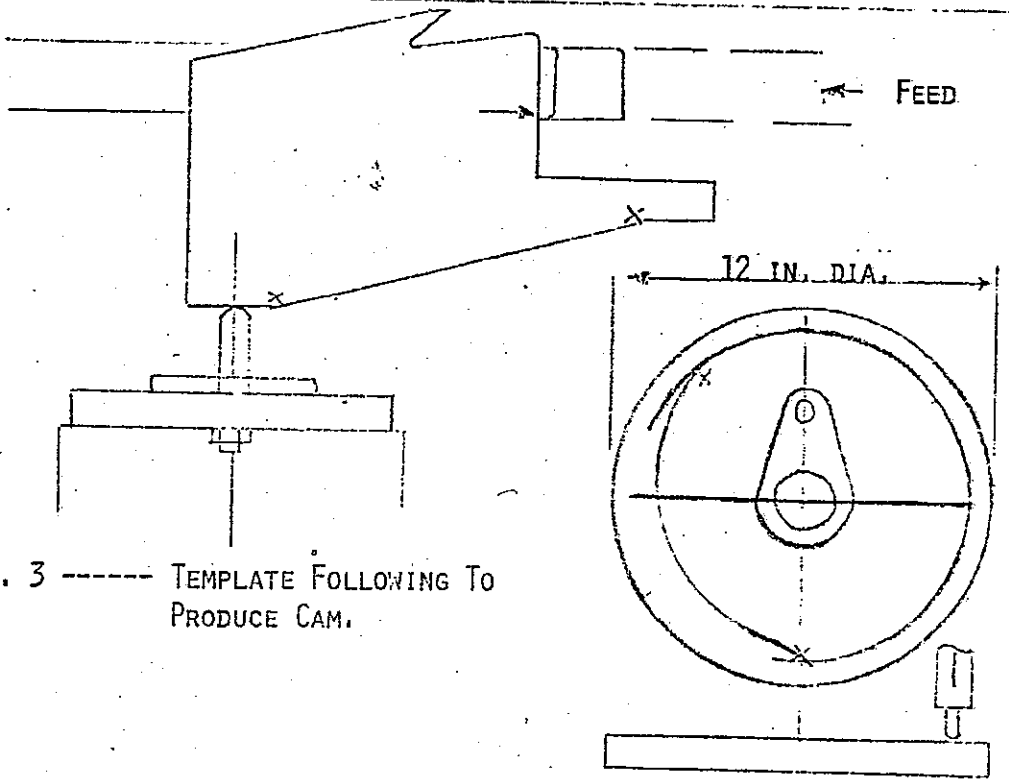


FIG. 3 ------ TEMPLATE FOLLOWING TO PRODUCE CAM.

DRILLING AND ROUTING UNIT

The unit is capable of single or multiple drilling and routing slots of limited or unlimited length in continuously moving panels.

The unit is mounted on the adjustable overhead beam and is positioned along the beam through a rack and pinion manual drive. The heights of the drill and stop bar above the track are set through separate vertical screws.

To cater for special conditions, the drill head is provided with a limited angular movement about its own vertical centre line. The movement is locked by two hexagon nuts. Three marks are shown on the drill casing, the outer two marks showing the limit of the angular movement, either side of the centre line. The centre mark indicates the central datum position The positions are aligned against a mark on the motor frame. Corresponding marks are shown on the scale pointer on the stop bar.

The drill movement is actuated by a solenoid operated air cylinder, controlled by two electrical limit switches, operated by limit plates. Operation of switch A fig.4 causes the drill to rise, whilst operation of switch B fig. 4 brings the drill down.

The stop bar mechanism is designated left and right hand about the vertical centre line of the drill when looking in the direction of the feed.

HORIZONTAL DRILLING

To engage the drill unit in the horizontal position (left or right) unscrew the locating plunger G Fig. 4 until it is free of the barrel (approx. 6 turns). Partly release the two barrel clamping screws H. Fig.4 (about half turn) and swing the unit into the required position. Relocate the plunger and lock up the clamping screws.

When operating in the horizontal position, it is necessary to bring the drill centre into line with either the left or right hand stop finger (right hand stop finger on left side of machine). Release the two hexagon nuts J Fig. 4 and swing the drill head to the necessary position. To compensate for this reduction in the distance from drill centre to stop finger, the second mark of the scale pointer should be used.

The setting and drilling operations are now continued as previously described.

Drilled hole in top and edge (on common centre-line)

In certain cases, it is necessary for a drilled hole in the panel face to be intersected by a hole drilled in the edge of the panel.

The drilling unit, which has the shortest drilling cycle (i.e. least hole depth), is normally set to operate first. This will give the minimum delay between horizontal and vertical operations.

The two units are moved into their respective positions on the overhead beam. Set the stop finger positions and adjust for drill depth on both units, as previously described. The control of the second unit must be adjusted to allow the first drill to clear the hole, before the second drill cycle begins. This delay is created by increasing the length of the limit plate over the switch 'B' fig. 4; the panel, therefore, having a greater distance to travel before the drill head is actuated.

The panel is now free to continue through the machine without further operations or to engage with another pair of stop fingers, when the above operations will be repeated.

SETTING AND OPERATIONS FOR ROUTING.

The stop bar height must be set by means of the vertical adjusting screw so that the stop finger will engage the panel by about 1/4in. The cutter is inserted and locked in the chuck and the drill head adjusted to give the correct depth of slot. The operating stroke is 1.1/4in.

The scales on the stop bar indicate the distance from the centre line of the cutter spindle to the front edge of the stop finger. When the routing operation is required, the position of the R.H. stop finger determines the start of the groove and the L.H. stop finger the end of the groove.

The sequence of operations, for example, is as follows. Assume that all initial settings have been made. The panel engages with the first R.H. stop finger and the unit begins to move back with the panel. After about 1/4in. of movement, limit switch B fig. 4 is released and the drill head air cylinder is actuated. The head will now stay down, until limit switch A is operated. The panel remains stationary relative to the cutter, until the unit moves back far enough for the trip finger to operate the stop finger release mechanism. As dimension X is less than dimension Y fig. 4, the release mechanism will be released before the drill head is lifted, so that the panel is now free to move relative to the cutter, which still remains down. The panel now moves back under spring action, until the leading edge of the panel engages with the first L.H. stop finger and the panel cutter now become stationary again relative to each other. This position will be the end of the groove and it is now necessary to disengage the cutter from the panel.
As the distance from the L.H. trip link to the L.H. trip finger (dimension Z) fig. 4 is now greater than that between limit switch A fig. 4 and its operating plate (dimension Y) fig. 4 the cutter will be disengaged from the panel before the stop finger is released to allow the panel to move relative to the cutter. The panel is now free to continue through the machine without further operations or to engage with another pair of stop fingers, when the above operations will be repeated.

SETTING PROCEDURES FOR DRILLING AND ROUTING UNIT

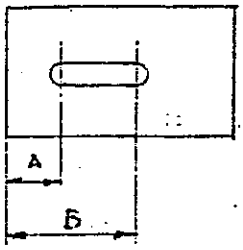


Fig. 1

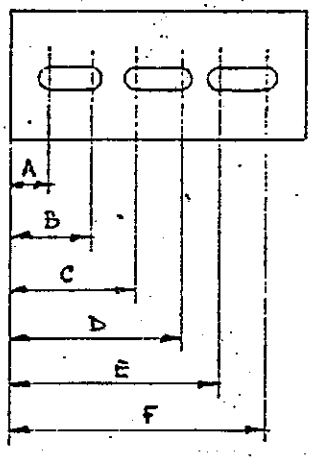


Fig. 2

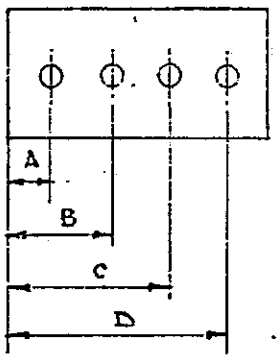


Fig. 3

ALL DIMENSIONS TAKEN FROM LEADING EDGE OF PANEL

Single Stopped Grooves

1. Set stop bar height, so that stop finger engages leading edge of panel by about 1/4in.
2. Set drill head height to give required depth of groove. Stroke 1.1/4 .
3. Set 1st R.H. stop finger to dimension A on stop bar scale.
4. Set 1st L.H. " " " " B " " " "
   Operate and check, adjust if necessary.

Multiple Stopped Grooves

Set operations (1) to (4) as for single grooves

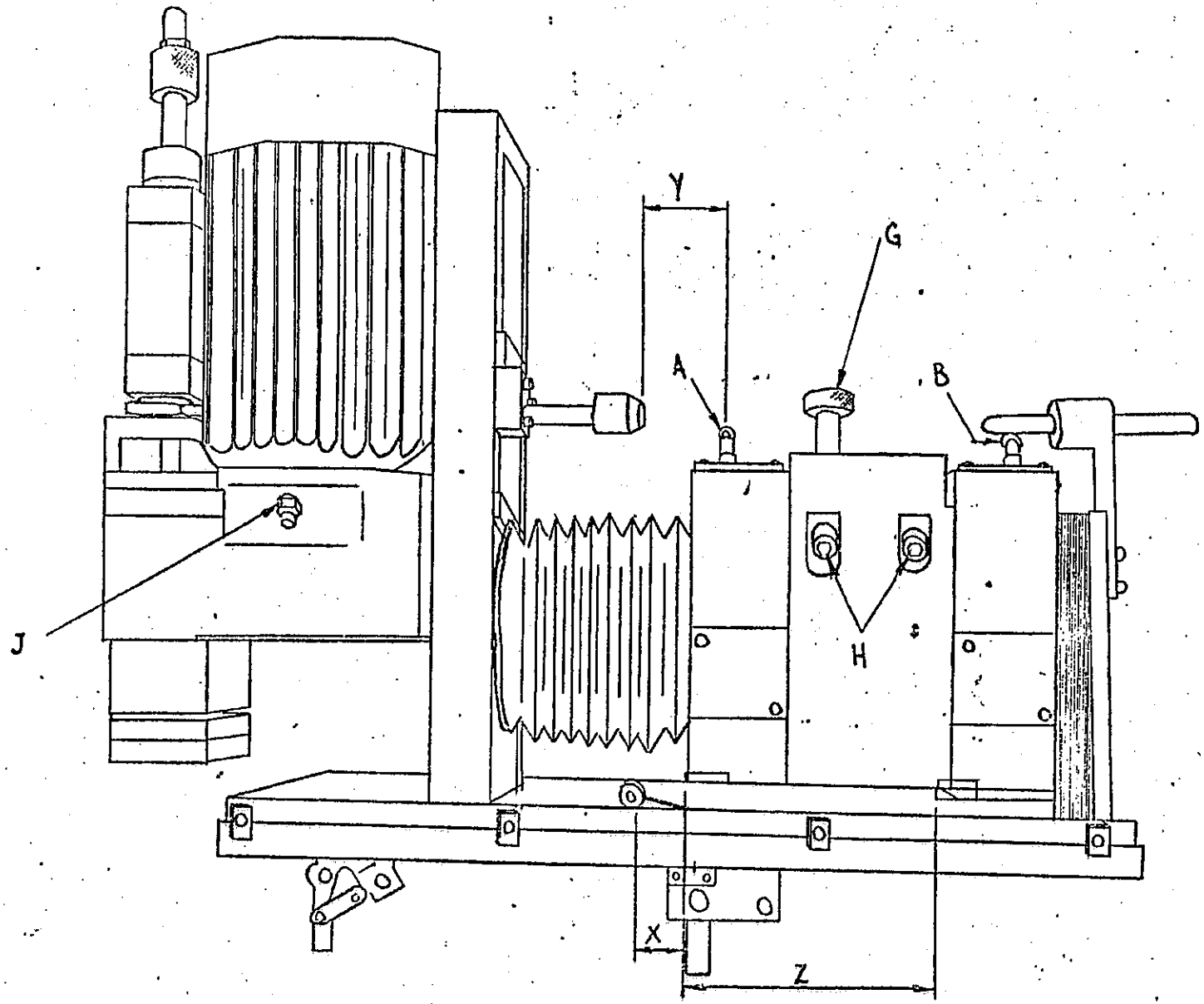
5. Set 2nd R.H. stop finger to dimension C.
   Set 2nd L.H. " " " " D.
   Set 3rd R.H. " " " " E.
   Set 3rd L.H. " " " " F.

   Operate and check, adjust if necessary.

Drilling

1. Set stop finger and drill depth as above.
2. Set 1st L.H. stop finger to dimension A
3. Set remaining L.H. stop fingers to their respective dimensions

   Operate and check, adjust if necessary.

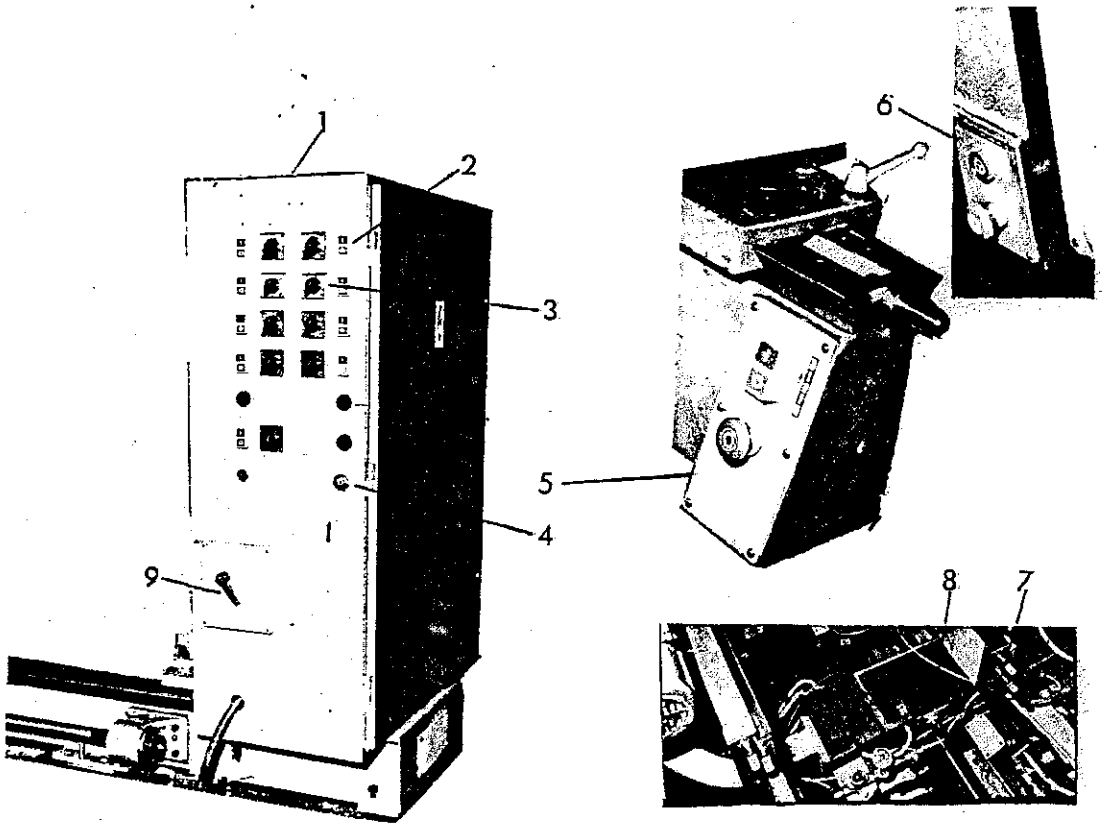


DRILLING AND ROUTING UNIT

FIGURE 4

ELECTRICAL CONTROLS

All head motors are remotely controlled from a console (1) which is mounted on an extension to the machine bed at the extremity of the adjustable beam. Each head motor is provided with an electro-magnetic contactor starter having under voltage protection single phase prevention and thermal overload protection for each phase. Each are controlled from start and stop pushbuttons (2). In addition each head is provided with a rotary switch (3) for selecting the direction of rotation of the spindle and for providing a higher spindle speed when specified. A separate mushroom headed master stop button with lock off feature (4) to stop the machine is also included. A separate control station (5) is fitted at the infeed end of each beam. These provide facilities for starting and stopping the feed chain from either beam, both stations include a mushroom headed master stop button with 'lock-off' feature the operation of either will stop the machine. A further feed control station (6) is provided at the outfeed end of the machine affording facilities to jog (inch) and stop the feed chain. The same station includes a Mushroom Headed master stop button. An electrically illuminated magnifier (7) is provided to facilitate the reading of the steel rule which is incorporated in the bed, adjacent to it a rotary 'jog' switch (8) enables the adjustable beam to be traversed in either direction. A suitably fused control circuit transformer having a voltage output of 110 volts provides the coil circuit supply of all control circuits. (9) is the disconnect switch.



OPERATION OF THE ELECTRICAL EQUIPMENT

The electrical supply disconnect (isolating) switch (9) situated in the control console must be turned to the 'on' position before any cutter spindle traverse or feed (or frequency changer when specified) can be started. The master 'lock-off' stop push buttons must be turned and released before any head, traverse or feed (or frequency changer when specified) can be started.

To start the cutter spindle motors, first ensure that the cutterblocks and or saws are free to rotate then press the respective start button, to stop press the associated button. To start the feed first select the required running speed see page 32 then press the start button (2) to stop press stop button. An additional jog/stop 'feed' push button (6) and Mushroom Headed Master stop button with lock off feature is situated at the outfeed end of the machine. To start traverse operate the jog switch (8) page 32

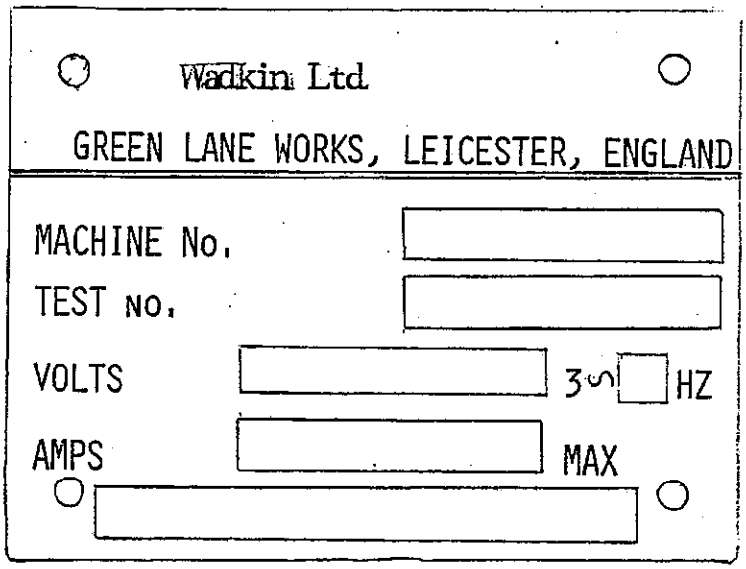
FAILURE TO START.

1. Electrical supply is not available
2. Fuses have blown
3. Disconnect switch has not been closed.
4. One or more of the master stop buttons is locked in the 'off' position.

SHUT DOWN DURING OPERATION AND FAILURE TO RE-START

1. Fuses have 'blown'
2. Overloads have tripped, these will automatically reset after a short time.

Suggested List of Wearable Parts to be kept as spares.
When ordering spare parts always quote machine symbol, serial number and test number.



Overhead Pressure
Rubber Pads
Block Chain Links
Gears for Transmission
Universal Coupling
Vee Belt
Feed Unit
Fenner Belt
Brake Motor Disc
Feed Chain
Saddle Type Block No. Fixed and Adjustable
Platform Type Chain No.
Polyurethane insert platforms
Flat Back Dogs
Finger Dogs
Disappearing Dogs (fixed saddles)
Disappearing Dogs (adjustable saddles)
Hold back dogs

LUBRICATION SCHEDULE

DAILY

Oil the feed chain drive sprocket nipples (1) (L4 oil)

Sealed bearings are fitted at the infeed chain sprocket

Operate hand pump (2) for lubricating the bed saddle and traverse screw (L4 oil) (if moving beam is in frequent movement)

Oil nipples (3) on pressure beam (vertical slides) (L4 oil)

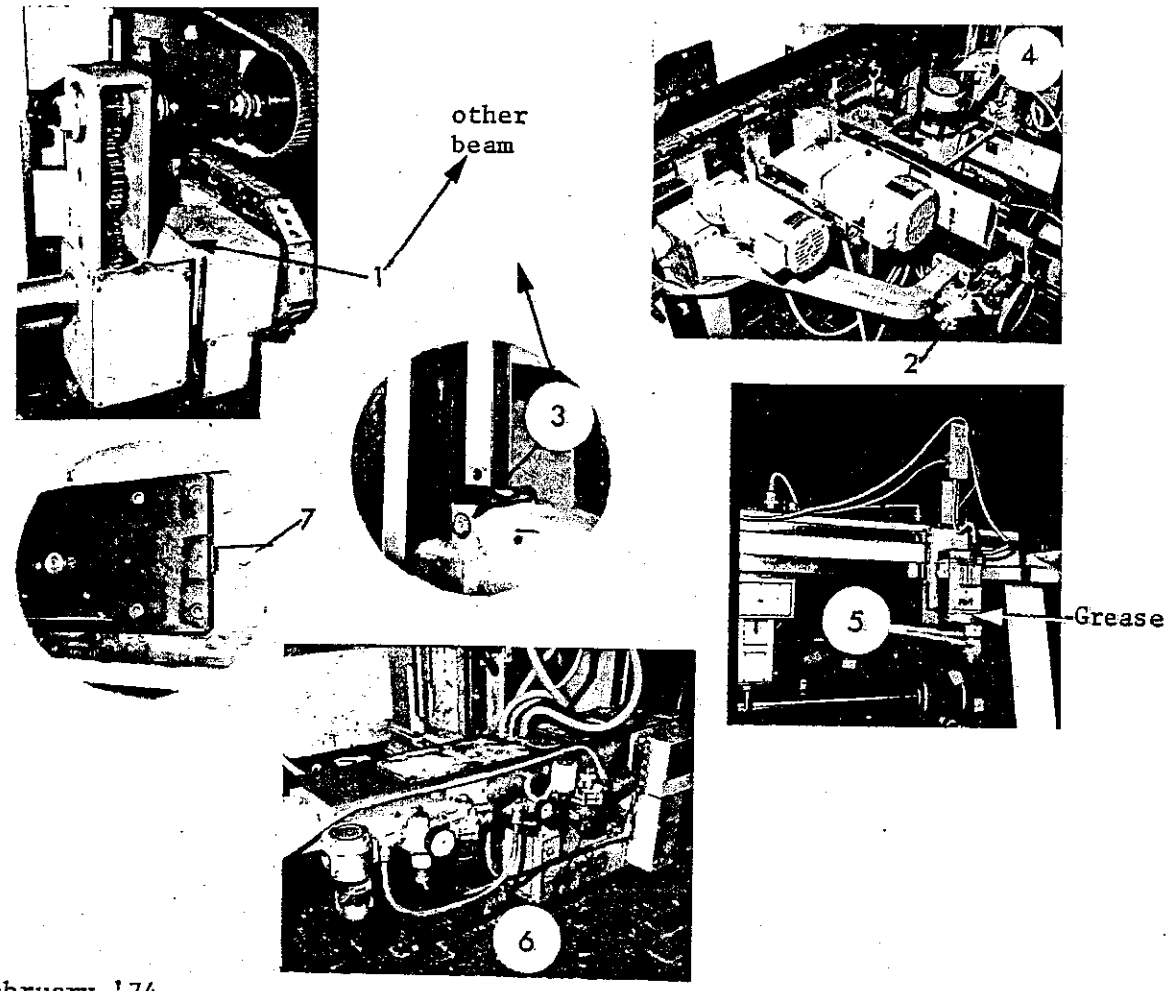
Oil nipples (7) on pressure beam (caterpillar only) (L4 oil) - oil pad - track lubrication.

Oil nipples on Relishing heads (4) (when fitted) (L4 Oil) - 3 off

Oil nipples on pneumatic cylinder slides for corner rounding attachment.
Oil nipples on jump dado heads (5) (L4 oil) (when fitted)

WHEN APPLYING OIL FROM OIL GUN GIVE ONE SHOT I.E. ONE DEPRESSION.

Check oil level of lubrication units (6) for chain track blowers and pneumatics lubrication (Mobil Almo No.1 oil).



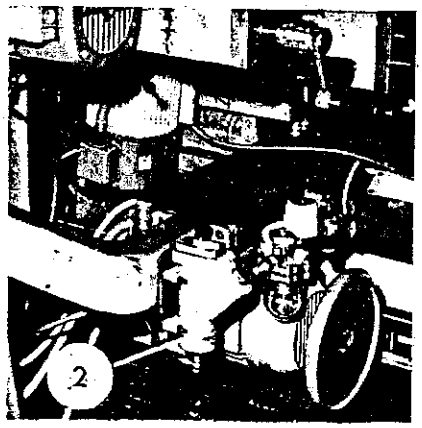
LUBRICATION SCHEDULE (Cont.)

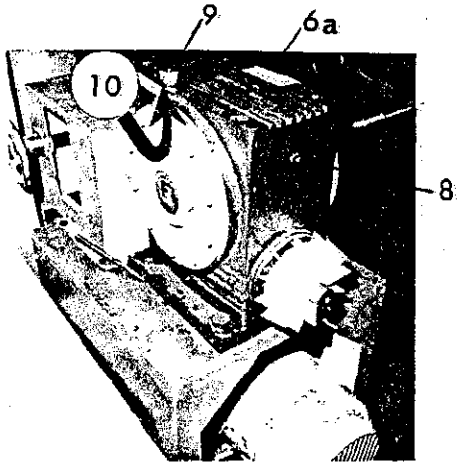
WEEKLY.

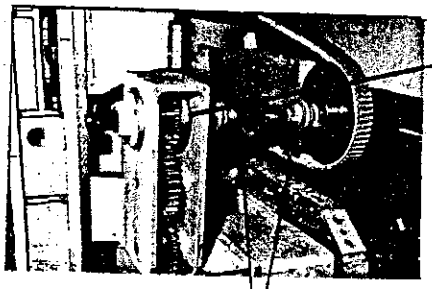
Check oil level in hand pump (2) (L4 Oil)

Oil all slideways and raising screws (L4 Oil) also via oilers to vertical screws.

Check oil level in chain feed drive gear box (6a)
By removing plug (8) and filling via filler cap (9) underneath which is a nylon breather (10) (check that holes are clear) (L2 Oil).





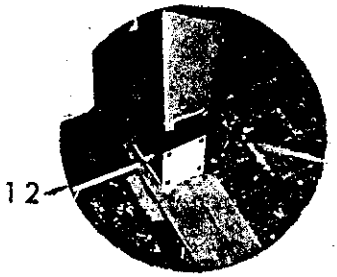


Grease Gear Box at Top Pressure Drive every 2500 hours of operation (L6 grease)

Oil universal joint nipples at top pressure drive.

MONTHLY

Oil Beam Support Roller (12) (L4 Oil)

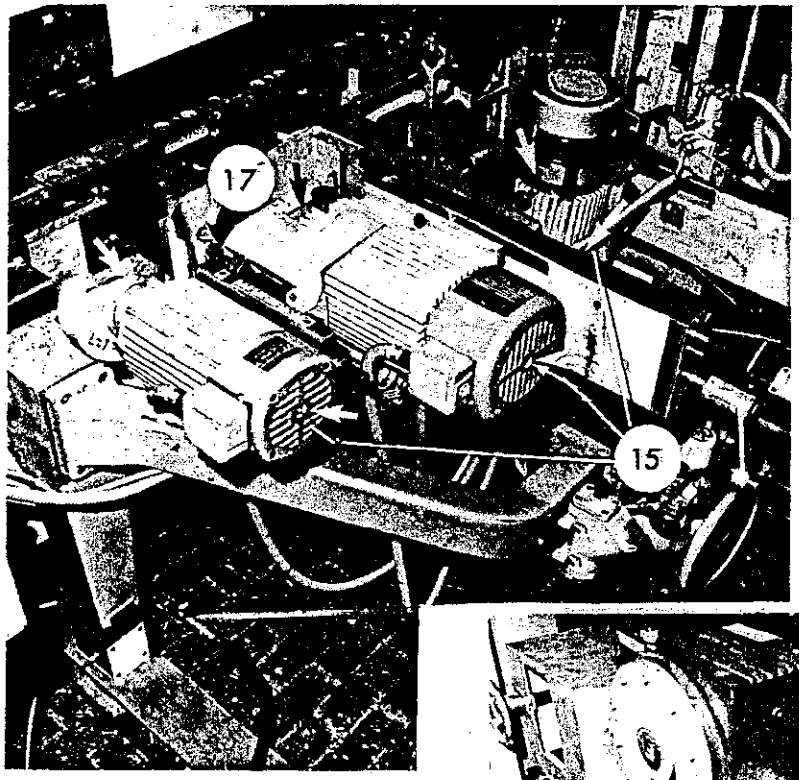


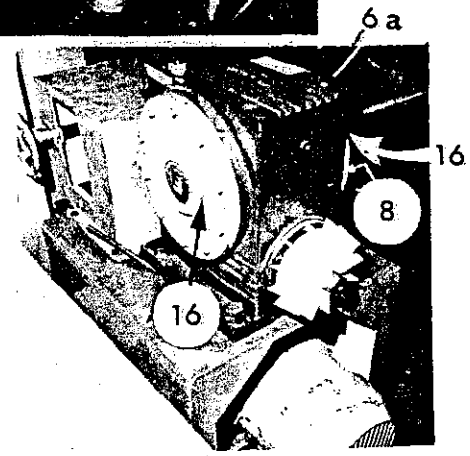
LUBRICATION SCHEDULE (Cont.)

3 MONTHLY

Every 3 months - grease all motors (15) (L6 grease)

Grease nipple on hinge pin between hogging saw and scoring saw. (17)





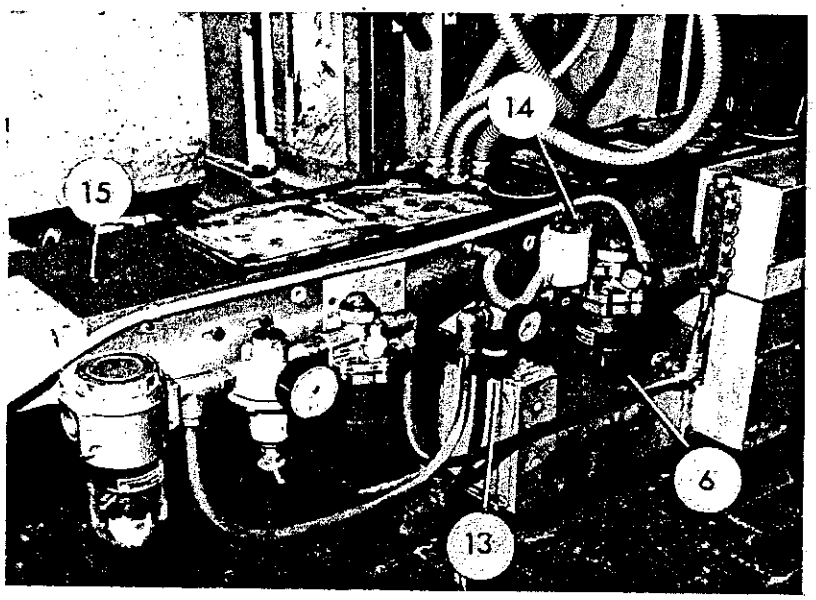
Grease feed drive worm reduction gear box - bearings (16) every 2500 hrs.of operation (L6 grease)

Drain, flush and refill feed drive gearbox (6a) Remove drain plug (8) and refill as described previously.

LUBRICATION SCHEDULE (Cont.)

The two feed chains are fitted with a track blower, the primary object of these is to remove debris (sawdust etc.) from the chains by applying a jet of air and secondly to lubricate the chains at regular intervals.

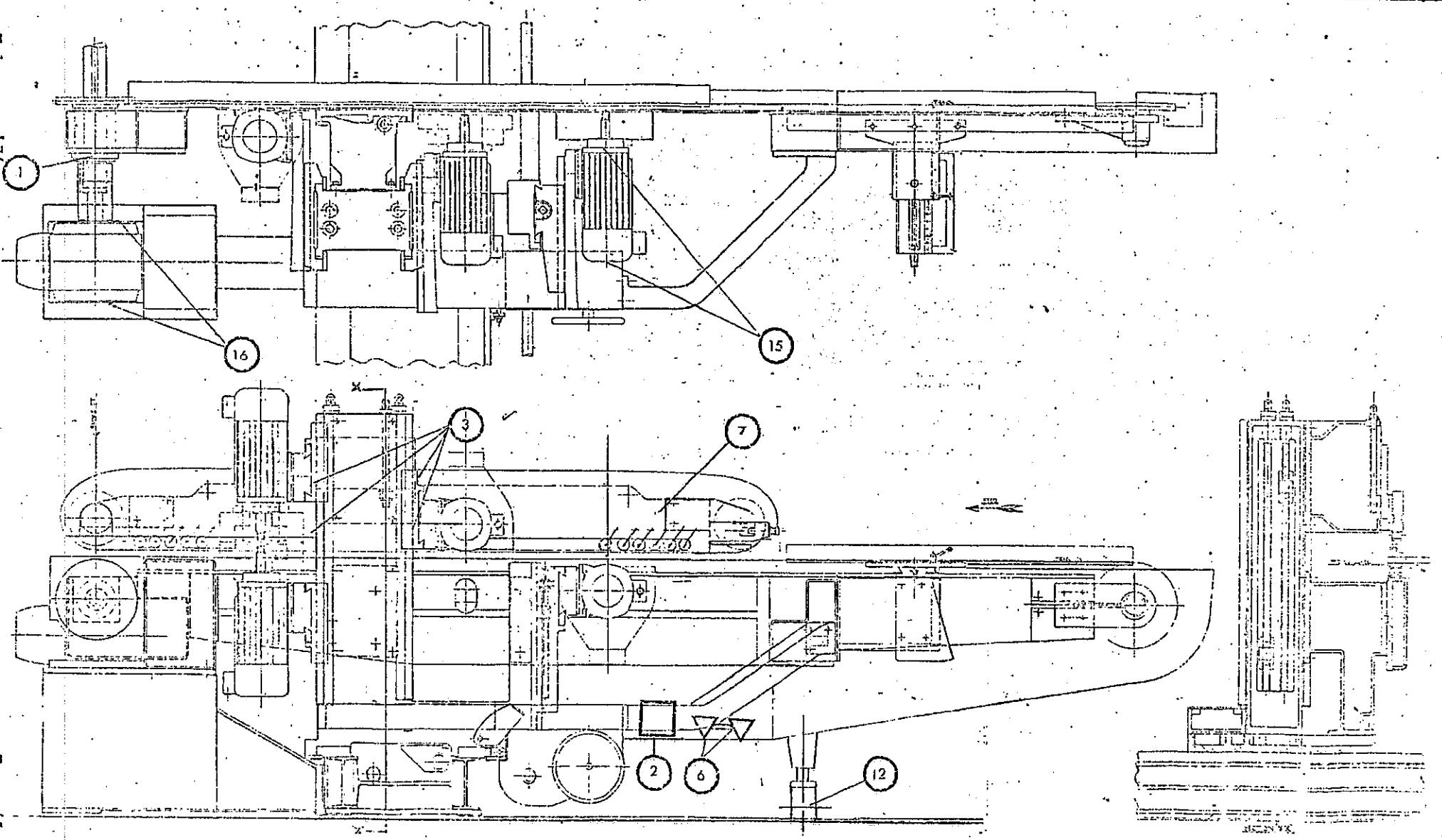
The blowing nozzles are located within the beam and are fed by a secondary regulator (13) solenoid (14) and oil dispenser (6). These are grouped as composite units and mounted on the machine bed (15). The oil dispenser is adjusted to give one 'drip' of oil every minute and the air pressure is regulated to give a pressure of 80 lbs. per square inch.



EQUIVALENT LUBRICANTS

Wadkin Grade and Type	Mobil	Shell	B.P.
Oil Grade L1	D.T.E. Oil Light	Tellus 27	Energol HL65
Oil Grade L2	D.T.E. Oil B13	Tellus 69	Energol HL150
Oil Grade L4	Vactra Oil Heavy Medium	Tellus 33	Energol HL100
Grease Grade L6	Mobil Plex 48	Shell Alvania R3	Energrease LS3

Oil Mist Lubrication Mobil Almo No.1 Oil



LUBRICATION POINTS