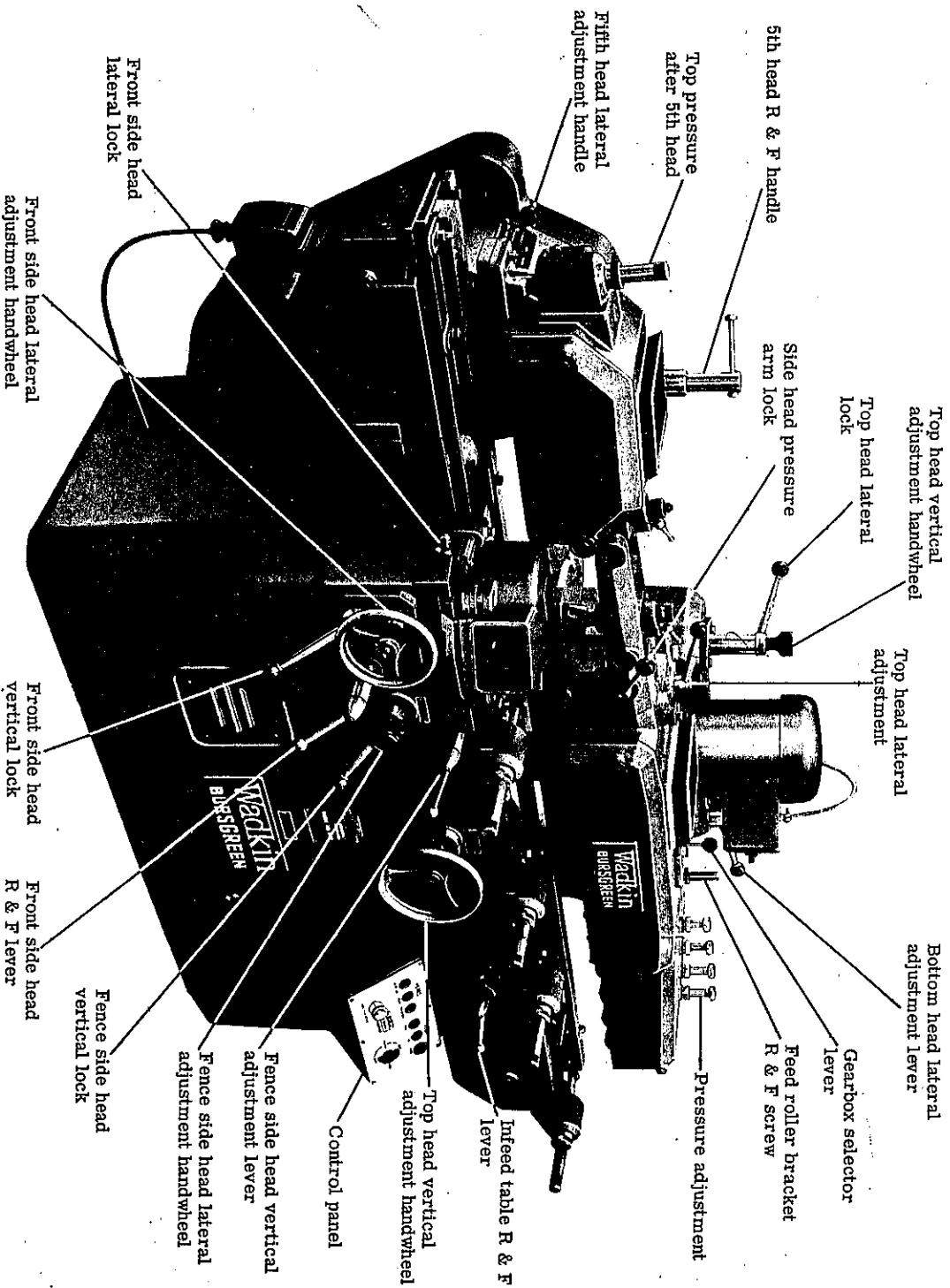


4½" x 3" PLANER AND MOULDER BFO



BFO INSTRUCTIONS

SPECIFICATION

Maximum size of timber admitted	4¾" x 3¼"	120 x 90mm
Minimum length of timber	9"	220mm
Yield of feed rolls, pressures and chipbreakers, except on maximum size stock	3/8"	10mm
Length of cutterblocks for horizontal heads	4¾"	120mm
Length of Cutterblocks for side heads	3¼"	90mm
Cutting circles :-		
Std. cutting	maximum moulding	

	Circle	Dia	
Bottom Head	5"	5¾"	127mm
Top Head	5"	7"	127mm
Fence side head	5"	6¼"	127mm
Front side head	5"	6½"	127mm
5th head - Top	5"	7"	127mm
Bottom	5"	7"	127mm

Note:- Top and front side head can be fitted with 4" (101mm) dia. cutterblocks. 9" (229mm) dia can be used on 5th head when in top position only.

Diameter of feed rolls	2.7/8"	73mm
Feed speeds per min with single speed motor	20, 35 & 50ft	6, 10 & 15m
Feed speeds per min with two speed motor	10, 17½, 20, 25, 35 & 50ft	3, 5, 6, 7 5, 10 & 15m
Motor for first top and bottom heads		7½HP
Motor for side heads		5HP
Motor for 5th head		5HP
Feed motor, single speed		3HP
Spindle speeds, all heads		5, 000 rpm
Spindle end diameter, all heads optional	1¼" 30mm	32mm

4 Head Machine

Floor space	72" x 35"	1, 830 x 890mm
Approx. net weight	2464lbs	1118kg
Approx. gross weight	3192lbs	1448kg
Shipping dimensions	106cu.ft.	3m³

5 Head Machine

Floor space	84" x 35"	2, 130 x 890mm
Approx. net weight	2688lbs	1219kg
Approx. gross weight	3584lbs	1626kg
Shipping dimensions	130cu.ft.	3.68m³

INSTALLATION

Remove protective coating from all bright parts by applying a cloth soaked in paraffin, turpentine or other solvent.

WIRING DETAILS

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

Points to note when connecting to power supply:-

1. Check that the voltage, phase and frequency correspond to those on the motor plate, also the correct coils and heaters are fitted to the starters.
2. It is important that the correct size of cable is used to give the correct voltage at the starter. Too light a cable will give a voltage drop at the starter and may damage the motor.
3. Check the main line fuses are of the correct capacity. See list below. When an isolator is fitted, the fuses are of the correct capacity as received.
4. Connect the line leads to the appropriate terminals. See fig. 2 for wiring diagram.
5. Check all connections are sound.
6. Check the rotation of all the motors for the correct direction. If this is incorrect reverse any two of the line lead connections.

Four Head Machine

Voltage	Phase	HP	SWG Tinned Copper Wire	Amps
220	3	7½/5/3	17	65
380, 420	3	7½/5/3	18	45
550	3	7½/5/3	19	38

Five Head Machine

Voltage	Phase	HP	SWG Tinned Copper Wire	Amps
220	3	7½/5/3/5	15	75
380, 420, 550	3	7½/5/3/5	18	45

FOUNDATION

See fig. 3 for foundation bolt positions and clearances required. Foundation bolts are not supplied with the machine but are available at a reasonable extra charge.

LUBRICATION

Lubrication should be carried out as shown in fig. 4. It is advisable to keep all bright parts covered with a thin film of oil to prevent rusting.

DUST EXHAUST SYSTEM

The size of all dust outlets are shown in fig. 4.

We have developed with Messrs. Dallow Lambert of Leicester a special collector unit for this machine which represents a big advance on the usual practise of coupling each head independently into the main exhaust system. We shall be pleased to supply details and quotation by request.

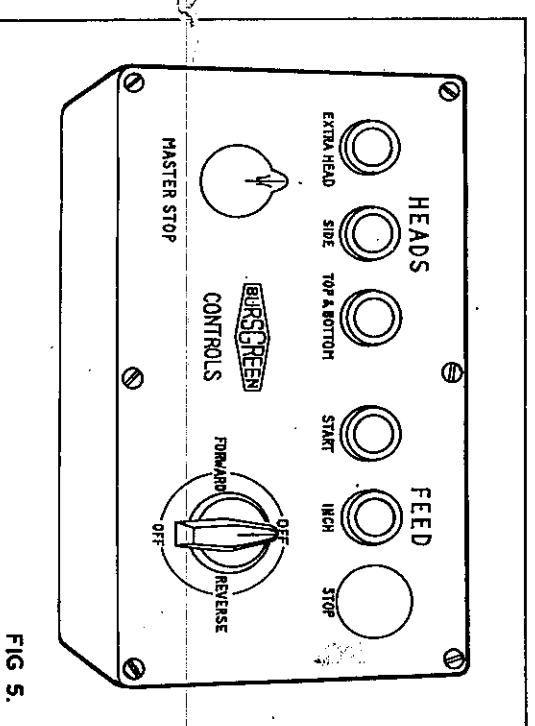


FIG. 5.

OPERATING INSTRUCTIONS FOR ELECTRICAL CONTROLS

All the electrical controls are conveniently placed at the in-feed end of the machine. The panel contains the following control buttons.

Controls for the feed:- In addition to the normal start and stop push buttons an inch button and reversing switch are provided. The inch button operates the feed in either direction for the period it is depressed only.

Controls for the heads:- One motor drives both side heads and a second motor drives both horizontal heads. These and the motor for the extra head when supplied are controlled by separate push buttons. One push button controls both heads as indicated as one motor drives 2 heads.

A master button is provided which when operated stops the whole machine. This button is fitted with a "lock-off" feature and can be pushed in and half turned to lock the button in the "off" position, thus rendering all the controls inoperative. It should be used when leaving the machine or when attending to the cutterblocks to prevent accidental starting.

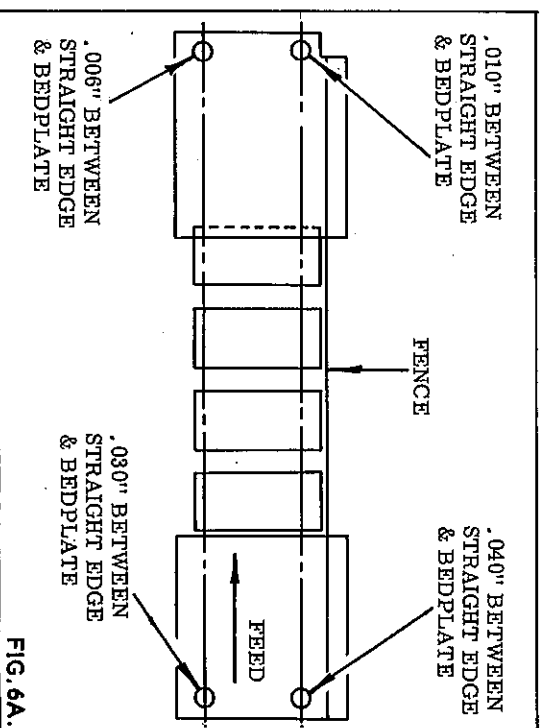
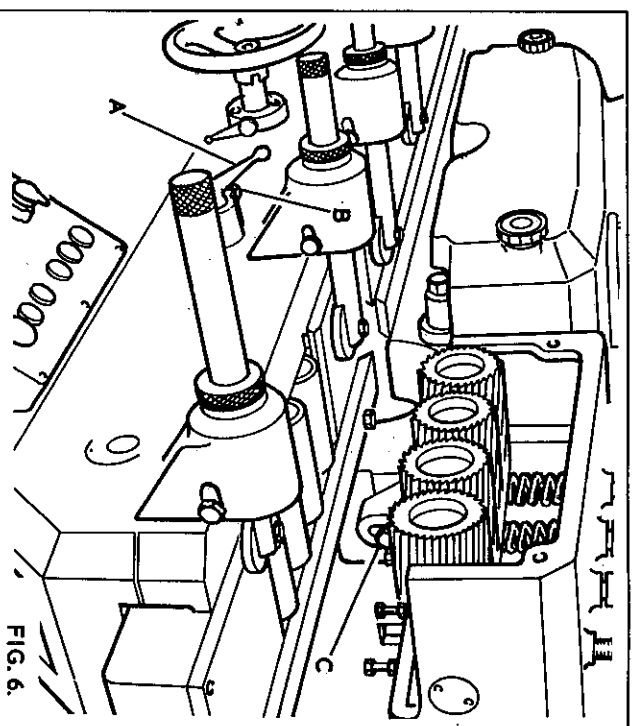


FIG. 6A.

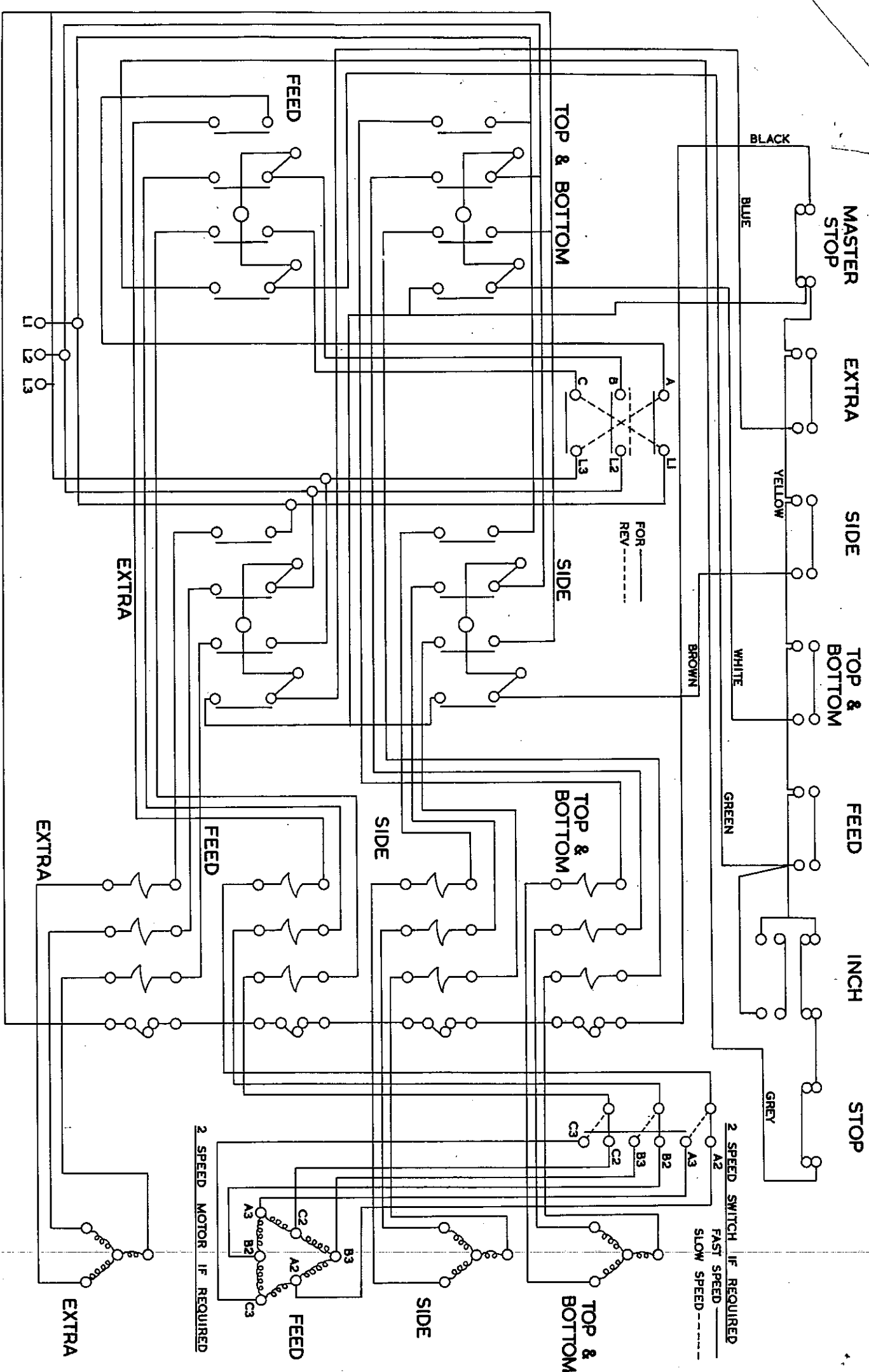
INFEED TABLE:

The infeed table is fitted with renewable bedplates and four ball bearing mounted rollers. The table has a total movement of 5/16" (8mm) which is controlled by the lever "A", in fig. 6.

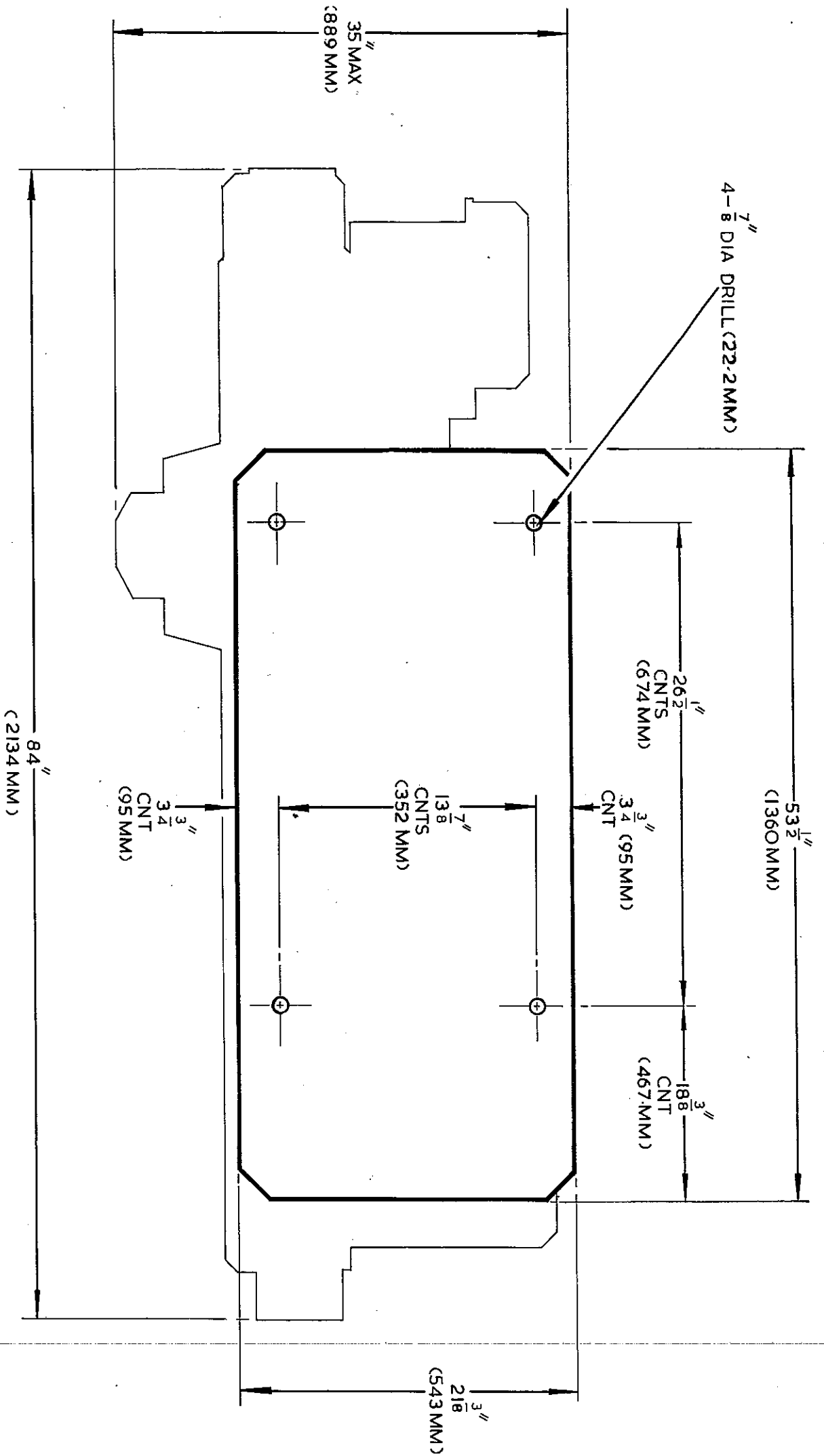
The table should be set to give the amount of cut required on the bottom head and can be locked in any position by means of the hexagon head bolt "B".

The ball bearing mounted rollers are set directly below the power driven feed rollers to reduce the friction on the feed to a minimum.

These rollers are set at works in accordance with dimensions shown in fig. 6(a). The rollers can be adjusted by means of the 6 grub screws in the side plates carrying these rollers. Care should be taken to ensure that the rollers are set to the dimensions shown should any re-alignment be necessary.

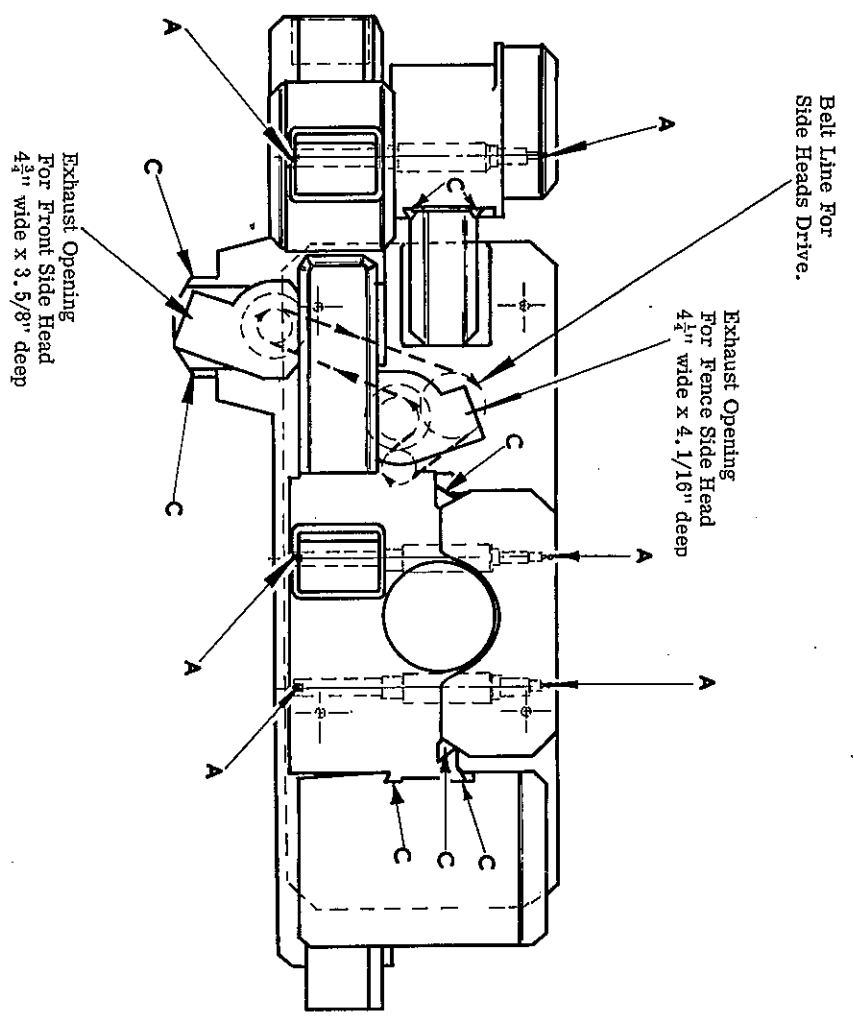
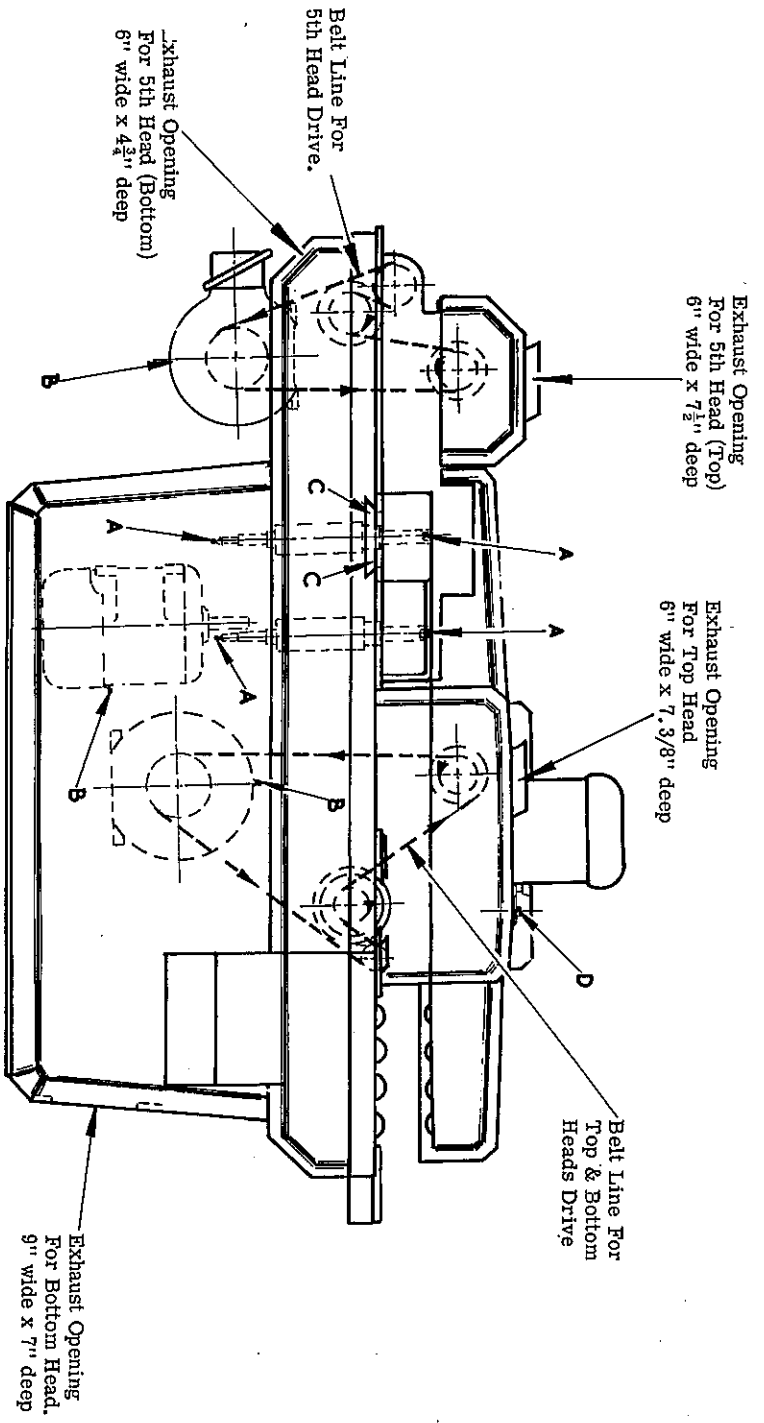


WIRING DIAGRAM 3 PHASE SUPPLY



FOUNDATION PLAN FOR $4 \frac{1}{2} \times 3$ MOULDER TYPE BFO.

FIG. 3.



LUBRICATION INSTRUCTIONS

- POINT "A"
 - POINT "B"
 - POINT "C"
 - POINT "D"
- ONE SHCT CF GREASE PER WEEK.
 ONE TURN CF GREASE BOTH ENDS CF MOTOR PER MONTH.
 OIL SLIDES WEEKLY.
 TOP UP TC OIL LEVEL WEEKLY USING EP LUBRICANT.

TYPE OF GREASE RECOMMENDED:- SHELL ALVANIA 3.
 TYPE OF OIL RECOMMENDED, POINT C:- CASTROL PERFECTO R. R.
 TYPE OF OIL RECOMMENDED, POINT D:- CASTROL "D" EP 140.

FIG 4.

FEED WORKS

The feed rollers are chain driven from a 3 speed gearbox giving feed speeds of 20, 35 and 50ft/min (6, 10 and 15m/min) from a single speed motor, and feeds speeds of 10, 17½, 20, 25, 35 and 50ft/min. from a two speed motor.

The gearbox is controlled by means of lever "A" in fig. 8 and the two speed motor, when fitted, is controlled by a rotary switch which is mounted direct to the motor.

The feed chain can be tensioned by means of the adjustable pulley, at rear of machine. Care should be taken when adjusting the tension that the feed-roller sprockets can move freely when timber is fed through the machine.

It should be noted that the feed rollers pivot from the rear of feed roller bracket and the correct feeding position for these rollers is when the rollers are parallel to the bed when timber is fed into the machine. This is shown in fig. 7 and, if not observed, will result in poor feeding. Pressure on the rollers can be increased or decreased by means of the knurled knob "A".

The whole feed roller assembly can be raised or lowered independently to the top head bracket by means of the adjusting screw "B", in fig. 8, to correspond to the cutting circle being used on the top head. Before adjusting the feed roller assembly loosen hexagon nut "C", in fig. 6 re-lock securely before feeding timber through the machine.

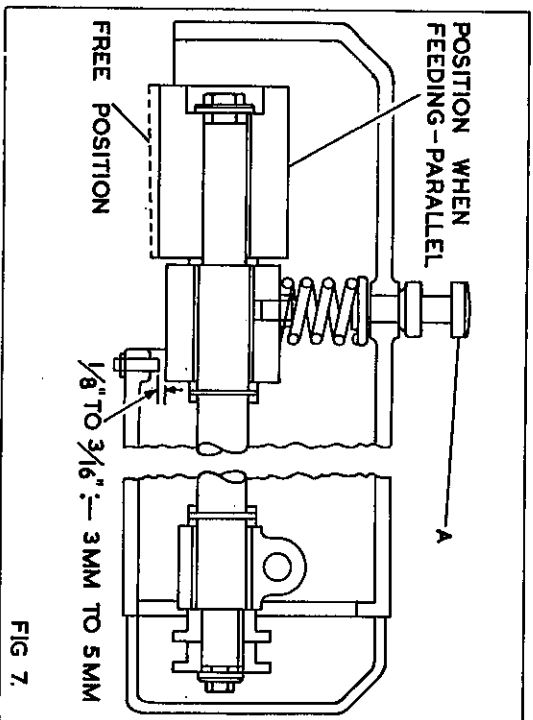


FIG 7.

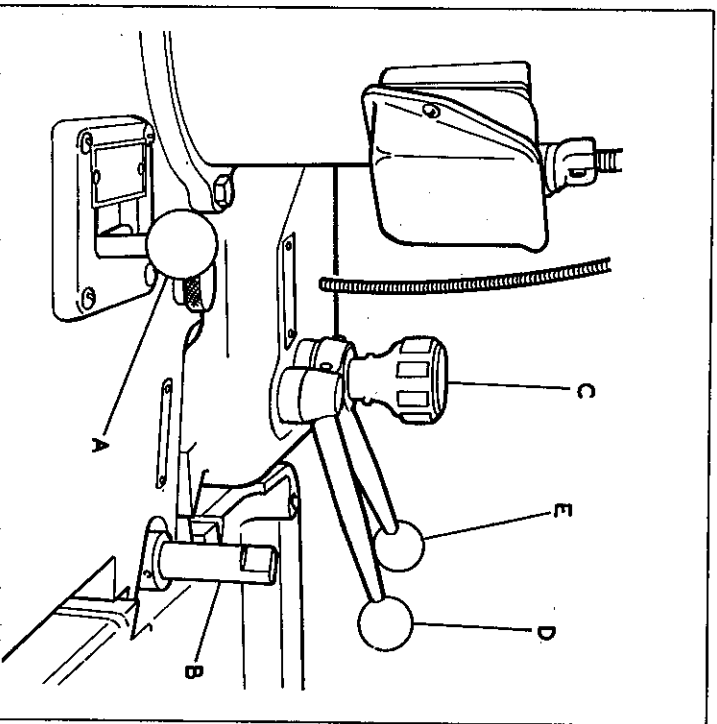


FIG 8.

BOTTOM HEAD

The drive to this head is by a flat belt from a 7½HP motor which also drives the top head. The spindle end is 1½" (30mm) diameter with a 3/8" (10mm) wide keyway and runs at a speed of 5,000rpm.

There are two blocks fitted to this spindle one 3" (76mm) square x 4½" (121mm) long and a thin circular cutterblock 6¼" (159mm) dia x 5/8" (16mm) thick which is fitted with tungsten carbide tipped cutters. The purpose of this block is to clean up the fence side of the stock on its passage through the machine, to the depth of the fence thus giving a register face to the stock. It is most important that this block is set to cut exactly in line with the fence directly after the bottom head. If the block is incorrectly set it will result in badly finished work and incorrect feeding.

The spindle is provided with fine vertical adjustment of 3/8" (10mm) by a worm and raked quadrant set into the spindle quill. Lateral adjustment is operated by handwheel "C", in fig. 8. Lateral adjustment of ½" (13mm) is also provided to the head by means of lever "D". Both movements are locked simultaneously by means of lever "E".

The standard cutting circle diameter of the main cutterblock is 5" (127mm) and a maximum moulding diameter of 5¾" (146mm) can be obtained.

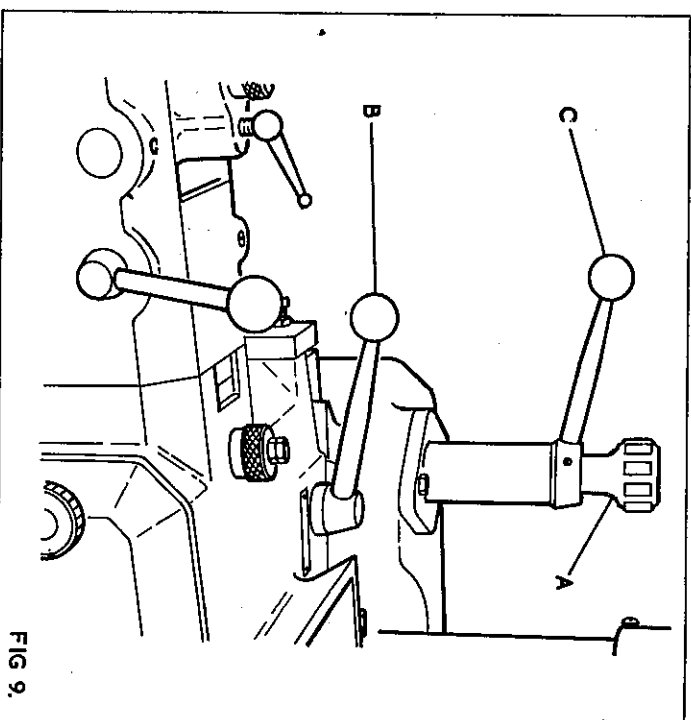


FIG 9.

TOP HEAD

The drive to this head is by a flat belt from the same 7½HP motor which drives the bottom head. The spindle end is 1½" (30mm) diameter with a 3/8" (10mm) wide keyway and runs at a speed of 5,000 rpm.

The block fitted to the spindle is 3" (76mm) square x 4½" (121mm) long.

The spindle is provided with fine vertical adjustment of 3/8" (10mm) by means of a worm and raked quadrant set into the spindle quill. The vertical adjustment is operated by handwheel "A" in fig. 9. Lateral adjustment of ½" (13mm) is also provided to the head by the lever "B". Both movements are locked simultaneously by means of lever "C".

The standard cutting circle of the cutterblock is 5" (127mm) and a maximum moulding diameter of 7" (178mm) can be obtained.

FENCE SIDE HEAD

The drive to this head is by a flat belt from a 5HP motor which also drives the front side head. The spindle end is 1½" (30mm) diameter with a 3/8" (10mm) wide keyway and runs to a speed of 5,000rpm.

The block fitted to the spindle is 3" (76mm) square x 3½" (83mm) long.

The spindle is provided with fine lateral adjustment of 3/8" (10mm) by means of a worm and raked quadrant set into the spindle quill. The lateral adjustment is operated by handwheel A in fig. 10. Vertical adjustment of ½" (13mm) is also provided to the head by the lever "B". Both movements are locked simultaneously by means of lever "C".

The standard cutting circle of the cutterblock is 5" (127mm) and a maximum moulding diameter of 6½" (159mm) can be obtained.

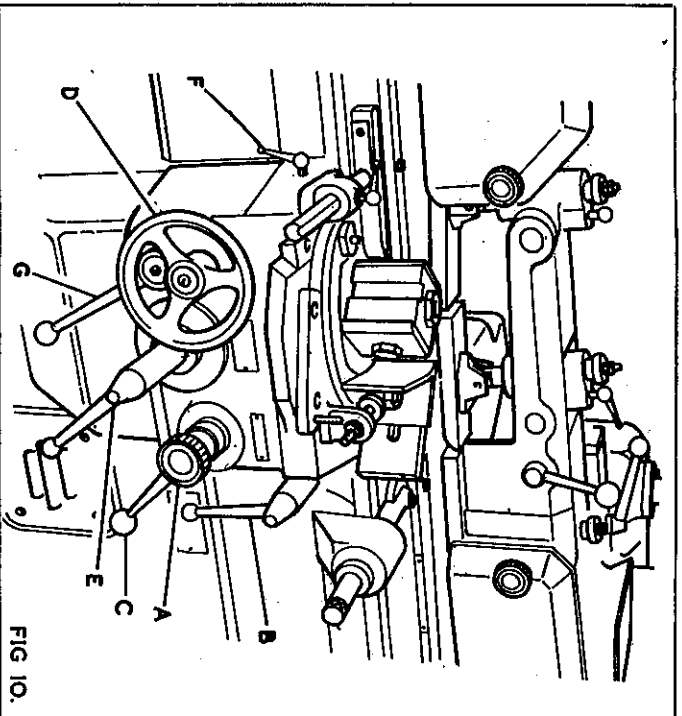


FIG 10.

FRONT SIDE HEAD

The drive to this head is by a flat belt from the same 5HP motor which drives the bottom head. The spindle end is $1\frac{1}{4}$ " (30mm) diameter with a $\frac{3}{8}$ " (10mm) wide keyway and runs at a speed of 5, 000 rpm.

The block fitted to the spindle is 3" (76mm) square x $3\frac{1}{4}$ " (83mm) long.

The spindle is provided with lateral adjustment of $4.3/8$ " (112mm) by means of screw through handwheel "D" in fig. 10. Vertical adjustment of $\frac{1}{2}$ " (13mm) is also provided to the head by the lever "E". The lateral movement to this head is locked by means of two ball lever "F" and the vertical movement is locked by means of lever "G".

The standard cutting circle of the cutterblock is 5" (127mm) and a maximum moulding diameter of $6\frac{1}{4}$ " (159mm) can be obtained.

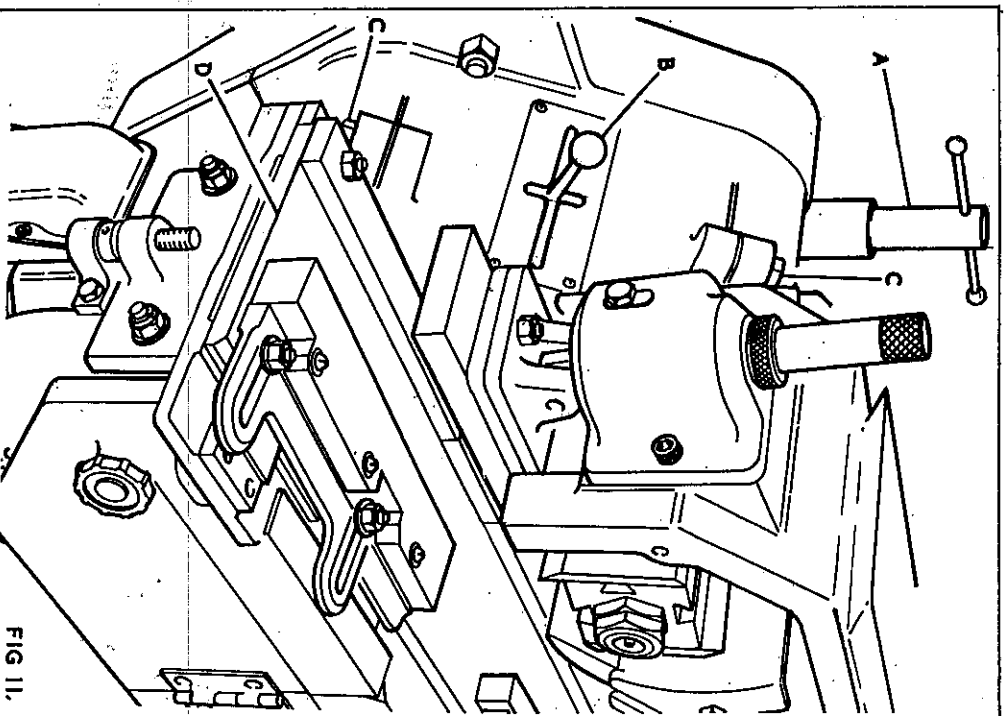


FIG 11.

EXTRA HEAD

An extra head is available as an optional extra and can either be used as a top or bottom head.

The drive to the head is by means of a flat belt from a 5HP motor. The spindle ends is $1\frac{1}{4}$ " (30mm) diameter with a $\frac{3}{8}$ " (10mm) wide keyway and runs at 5, 000rpm.

The cutterblock fitted to the spindle is 3" (76mm) square x $4\frac{3}{4}$ " (121mm) long.

Vertical adjustment to the head is by the handle "A" in fig. 11 and lateral adjustment of $\frac{1}{2}$ " (13mm) by the lever "B". The vertical movement of the head is locked in any position throughout its travel by means of the two ball lever screw "A" in fig. 12 and the lateral movement is locked by the hexagon nuts "C" in fig. 11 depending whether the head is being used as a top or bottom head.

The belt drive to this head is as shown, in fig. 12 and tension is provided by the jockey pulley "B" depending on the position of the head.

When the head is being used in the top position the standard cutting circle of the cutterblock is 5" (127mm) and a maximum moulding diameter of 7" (178mm) can be obtained.

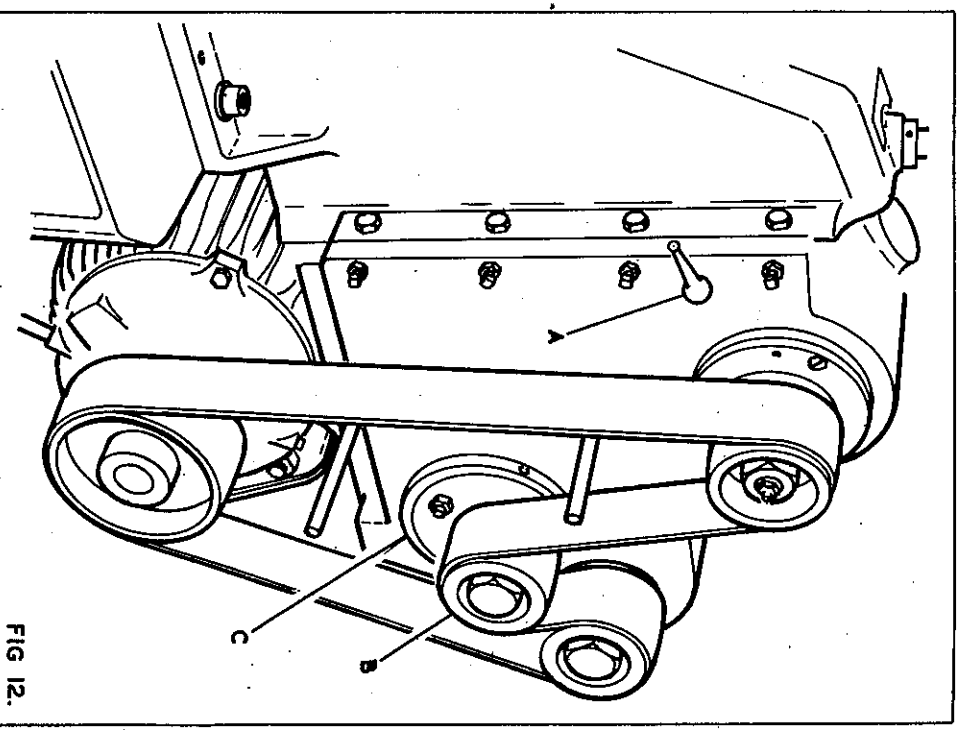
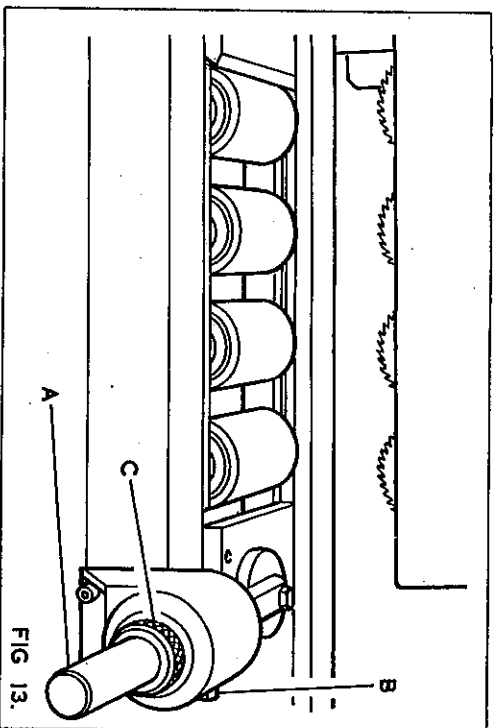


FIG 12.

INSTRUCTIONS FOR CHANGING POSITION OF HEAD

To reverse the position of the head the undermentioned procedure should be followed:-

1. Remove cutterblock, belt guard at rear of head assembly, and the belt. Unlock hexagon head bolts "C" in fig. 11.
2. Ensure handle "B" is in centre of the vertical slot and move away from the main spindle assembly. The main spindle can be withdrawn at the rear of the machine.
3. Move handle "B" in the opposite direction to that in operation 2 and withdraw the dummy quill "C" in fig. 12 which also carries a jockey pulley.
4. Replace the dummy quill "C" in the position which is not being used and push up to the stop. Make sure that handle "B" in fig. 11 is in the vertical slot and away from the position in which the dummy quill is being fit.
5. Replace spindle assembly in the required position again ensuring that handle "B" is away from the position in which the spindle assembly is being fit, also the location peg on the quill locates in the main casting.
6. Check the position of the bed plate "D" depending on whether the head is being used in the top or bottom position.
7. Replace belt, as shown in fig. 12 and re-tension belt by the jockey pulley on the dummy quill "C" and then replace belt guard.
8. The cutter equipment can now be fitted to the spindle.



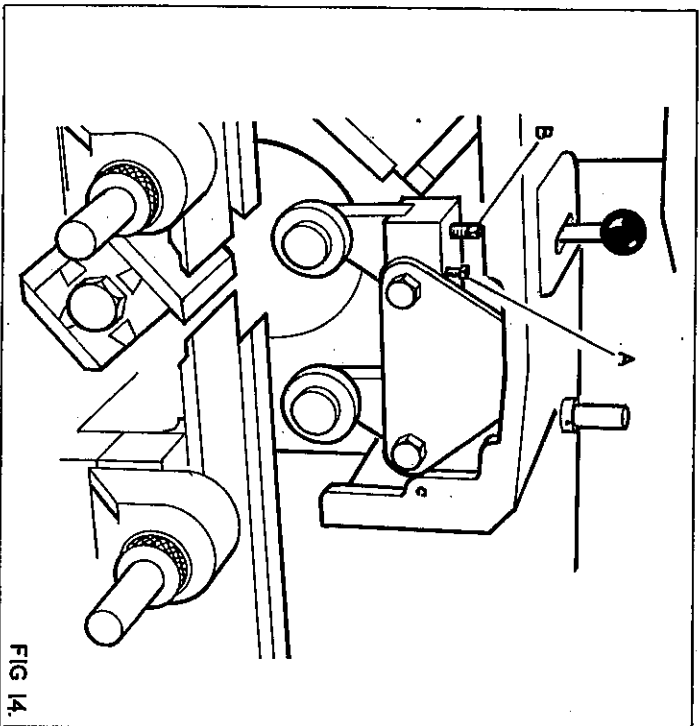
PRESSURES

First side pressure

The first side pressure is mounted on in-feed table before the feed works as shown in fig.13. The roller is mounted on the adjustment bar "A". To set roller loosen hexagon nut "B", and move forward until roller touches timber, remove timber and move roller forward a further $\frac{1}{4}$ " (6mm) and lock nut "B". This should give the necessary pressure required for a good finish, but should further tension be required this should be done by adjusting the knurled knob "C". The spring loaded roller when correctly set will allow for a maximum variation in timber of $\frac{3}{8}$ " (10mm) without altering the setting of the pressure unit, except on maximum size stock.

Second Side pressure before Bottomhead

The second side pressure is identical to the first side pressure and is adjustable in exactly the same manner.



TOP PRESSURES OVER BOTTOM HEAD

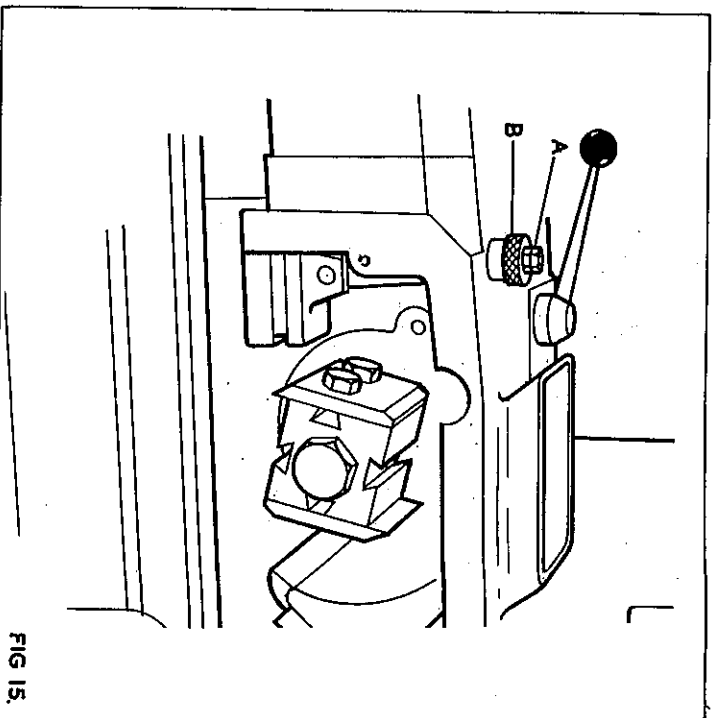
Two spring loaded roller pressures straddle the bottom head. The pressures are mounted on circular bars secured to the main head casting which enables the pressure unit to be moved in or out to suit varying widths of timber. To slide pressure unit, loosen square head bolt "A" in fig.14 and position where required and re-lock in position.

The spring pressure can be increased or decreased on each roller by adjusting the square head fine thread screw "B".

The rollers will yield for a maximum variation in timber of $\frac{3}{8}$ " (10mm), except on maximum size stock.

SIDE PRESSURE BEFORE FIRST TOP HEAD

This side pressure is identical to the first side pressure and is adjustable in exactly the same manner.



TOP PRESSURE AFTER TOP HEAD

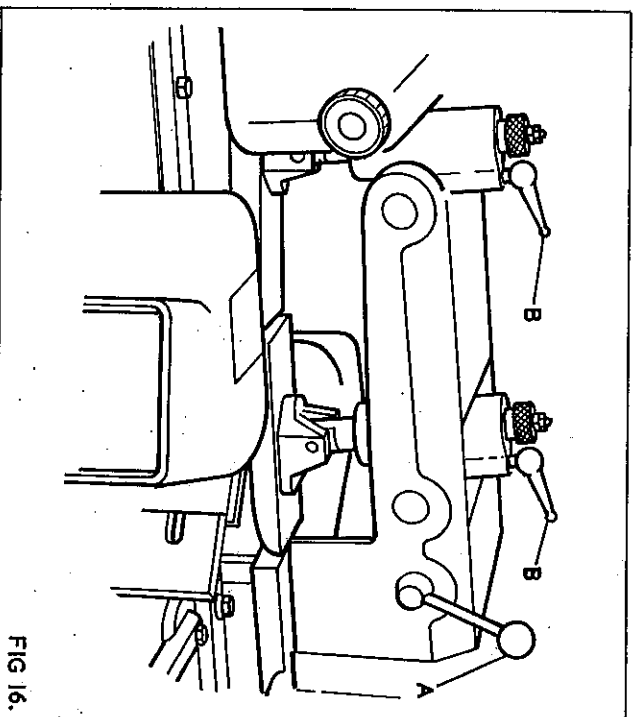
The pressure is mounted to the main top head casting and moves up and down with the top spindle unit. To adjust the position of the pressure pad adjust the nuts "A" in fig.15. To increase the spring pressure adjust knurled knob "B".

The pressure shoe is fitted with an adjustable steel plate to which wood packing pieces to suit the shape of the stock can be fixed.

A steel pressure shoe is available as an optional extra, if required, to replace the wood pressure shoe supplied.

SIDE PRESSURE BEFORE FRONT SIDE HEAD

This side pressure is identical to the first side pressure and is adjustable in exactly the same manner.



PRESSURES BETWEEN SIDE HEADS

These pressures are mounted in a removable bracket, as shown in fig.16 for easy access to the side heads. To remove pressure bracket complete, loosen lever "A" and lift complete bracket clear.

The pressures can be positioned anywhere across the full width of the machine. To position where required loosen the ball lever screws "B" and slide pressures as necessary. Re-lock with ball lever screws "B".

These pressures adjustments are identical to those of the pressure after the top head.

Steel pressure shoes are available as an optional extra, if required, to replace the wood pressure shoes supplied.

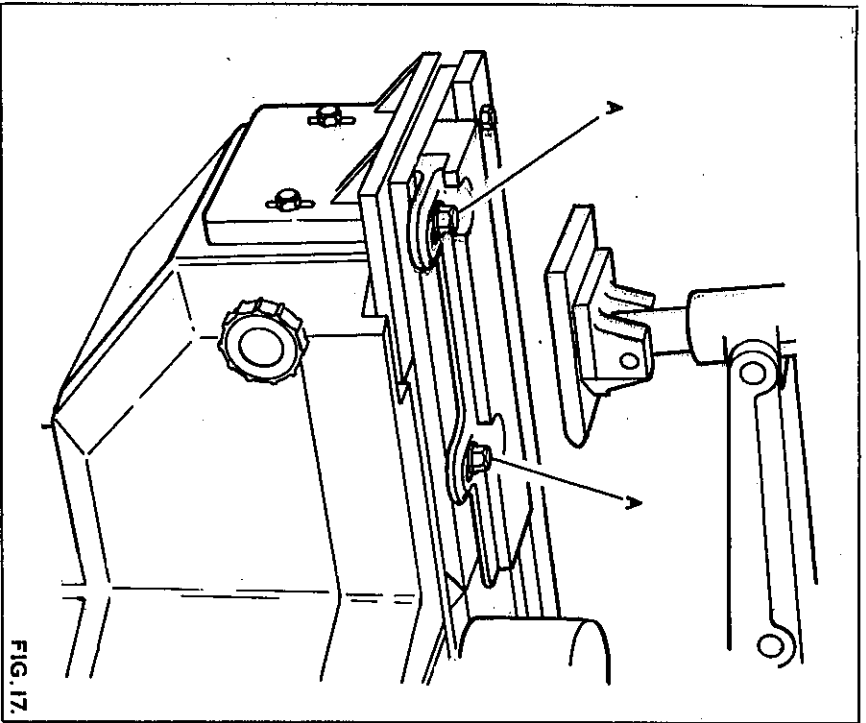


FIG. 17.

SIDE PRESSURE AFTER NEAR SIDE HEAD (4 Head Machine)

This pressure is of the solid type. The unit is slotted to give adjustment. To adjust the pressure loosen nuts "A", in Fig. 17 and position where required and relock nuts "A".
The front of this pressure plate is drilled to take a wood packing piece if required.

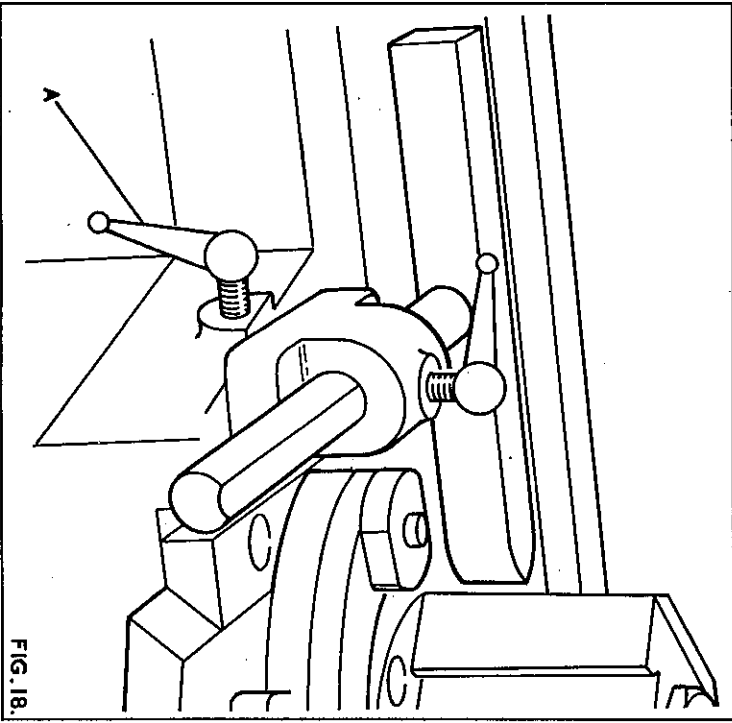


FIG. 18.

SIDE PRESSURE AFTER NEAR SIDE HEAD (5 Head Machine)

This pressure is the solid type. The unit slides on a bar and is locked in position by ball lever screw "A", in Fig. 18.
The front of this pressure plate is drilled to take a wood packing piece

SIDE PRESSURE AFTER EXTRA HEAD (5 Head Machine)

This is identical to the side pressure fitted after the near side head on a 4 head machine.

TOP PRESSURE AFTER EXTRA HEAD (5 Head Machine)
This pressure is identical to the side pressures before the side heads and is adjusted in exactly the same manner
The pad on this pressure is drilled to take a wood pressure pad.

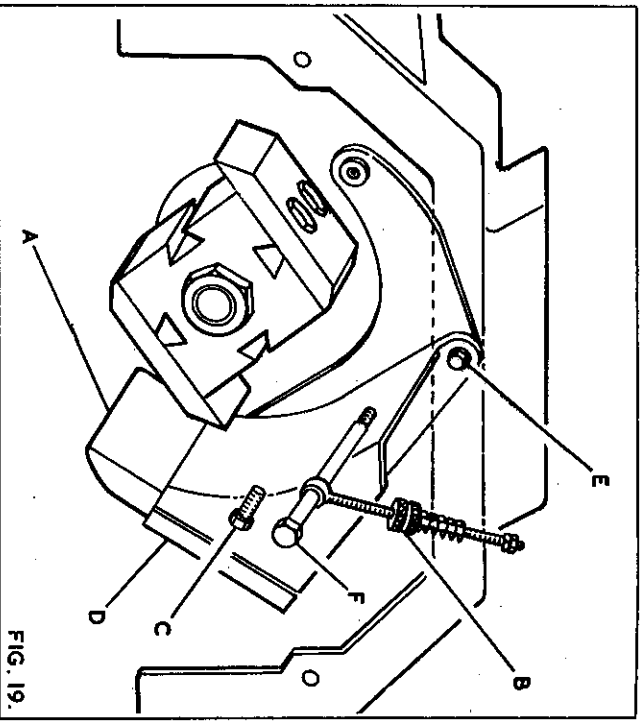


FIG. 19.

TOP HEAD CHIPBREAKERS

Chipbreakers are fitted to the top head of the machine also to the extra head for use when in the top position. A hardwood toe piece "A" in Fig. 19 is fitted which is easily renewed.
Spring pressure can be applied to the shoe of the chipbreaker by means of the knurled knobs "G". The hardwood toe piece is adjustable independent to the chipbreaker bracket by means of the nut "C" and trapping plate "D".
To adjust the hardwood toe accommodate cutting circles from 5" (127mm) to 7" (178mm) on the top head and up to 9" (229mm) on the extrahead, loosen pivot bolt "E" and remove locking screw "F" position hardwood toe where required and relock in position. A steel toe piece is available as an optional extra, if required, to replace the hardwood toe piece supplied.

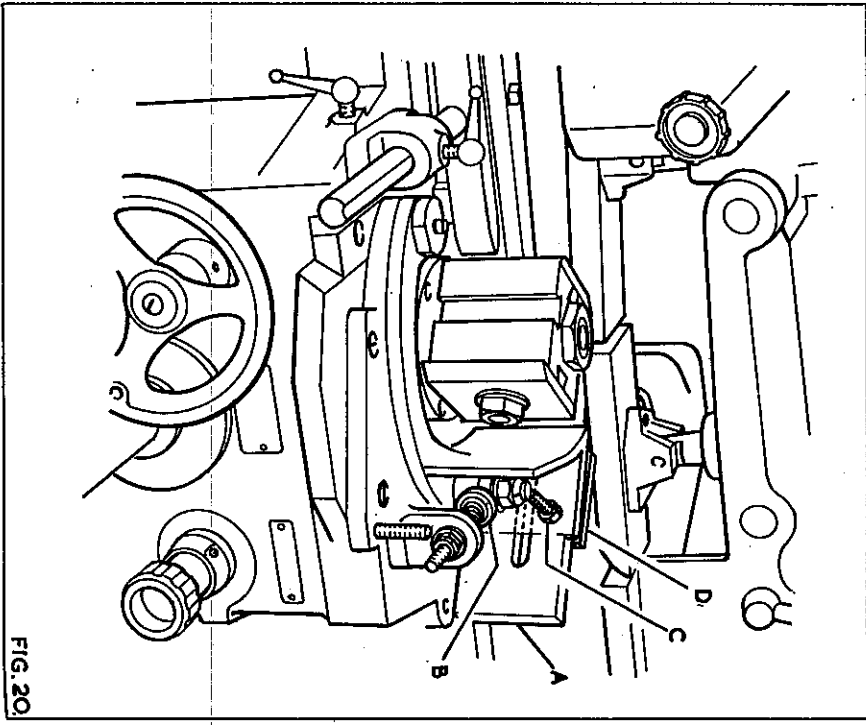


FIG. 20.

SIDE HEAD CHIPBREAKER

The chipbreaker fitted to the front side head is secured to the slide carrying the head and so moves with the whole head unit. A hardwood toe piece "A" in fig. 20 is fitted which can easily be removed or renewed.

Spring pressure can be applied to the shoe of the chipbreaker by means of the knurled knobs "B". The hardwood toe piece is also adjustable independently to the chipbreaker bracket by means of nut "C" and trapping plate "D".

A steel toe piece is available as an optional extra, if required, to replace the hardwood toe piece supplied.

FENCES :- INFEED FENCE

This fence is secured to the infeed table bracket and has a total adjustment of $\frac{3}{4}$ " (19mm). This fence is to be set parallel to the central fence and behind same by the required amount of cut to be taken on the rebate block fitted to the first bottom head.

CENTRAL FENCE

This fence is fitted to the main table between the bottom head and rear side head. This is fixed and should not be moved. It is most important that the rebate block cutters on the bottom head is exactly in line with this fence. If the block is not correctly set it will result in bad feeding and poor finish on the timber.

OUTFEED FENCE

This fence is secured to main table after the rear side head and has a total adjustment of $\frac{1}{4}$ " (6mm). This fence is to be set parallel to the central fence and in front of same by the required amount of cut to be taken on the rear side head. It is most important that the rear side head cutting circle is in line with this fence.

BEDPLATES

Renewable steel bed-plates are fitted throughout the entire length of the machine.

SIDE HEADS

These bed plates are adjustable in relation to the cutterblock depending on the cutting circle being used and to ensure support of the timber as close to the cutting face as possible at all times.

IN-FEED TABLE

Bed plates are fitted to the in-feed table before and after the bottom anti-friction rollers.

MAIN TABLE

This bed plate is directly under the first top head. A lead insert is fitted to this bedplate directly below the top head to prevent damage to the cutter should they inadvertently touch the bedplate.

OUTFEED TABLE

4 Head Machine :-

This bedplate goes from the front side head to the end of the outfeed table.

5 Head Machine :-

The outfeed bedplate is split into 2 on this machine from the front side head to the extra head when used as a bottom head. The outfeed bedplate is adjustable to provide a gap in the bedplates to provide for the bottom head. To adjust bedplate loosen nut "A" in fig. 21 and position bedplate where required and re-lock nut "A".

The outfeed bedplate is fitted to an adjustable table which should be set in line with the minimum cutting circle when this head is used in the bottom position. To adjust the table loosen the hexagon nuts "B" and adjust screw "C" to the required position and re-lock nuts "B".

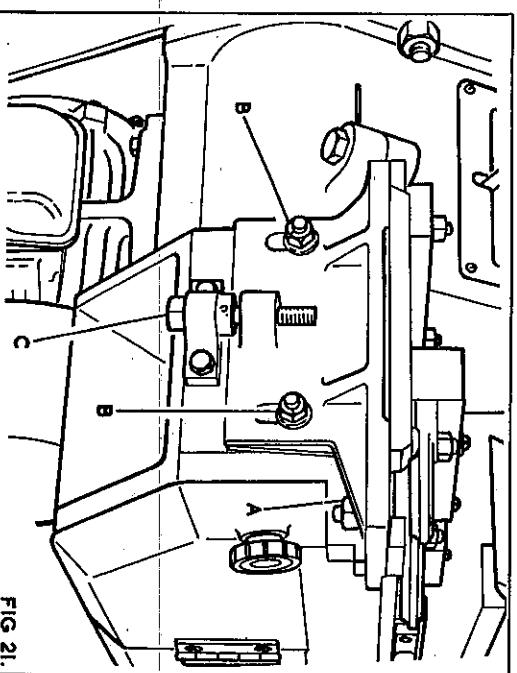


FIG 21.

Shaping Cutters

When shaping cutters for any mould on any type of cutterhead or slotted collars it is important that the correct allowance is made to the depth of form of the cutter.

Fig. 22 shows the projections of the cutter to produce a simple rebate. For example using fine 3" square cutterblock, to produce a $\frac{3}{4}$ " (19mm) deep rebate the cutter must have a depth of form of $\frac{7}{8}$ " (22mm) this being due to the angle at which the cutter strikes the work on the line "A.A.". When a shaped mould is required to be cut it is necessary to plot out the form of the cutter; this is shown in Fig. 23.

It is important when selecting blanks from which to make the cutter that they have the minimum necessary overhang. Also, a blank as near the shape and width as possible should be selected so that there will be less waste and less chance of overheating cutters when grinding.

The minimum cutting circle is fixed to give the necessary clearance for the bolt head when working with straight irons only. The cutting angle which is normally 35° is shown at "B" in Fig. 22 and the cutting angle at "C" this angle varies with the size of the cutterblock and the depth of the mould.

To obtain the correct cutter form for a shaped mould without using the moulders rule, it is necessary to plot this out as shown. First the square block and cutter at minimum cutting circle are drawn out at "Y" in Fig. 23. The radius of the minimum cutting circle is drawn around to the centre line and divided up by the lines A, B, C, D and E, into either $1/16$ " (2mm) or $1/8$ " (3mm) according to the size and intricacy of the shape, these lines are then struck round from the centre line radially to the face of the cutter.

At "X" the lines A1, B1, C1, D1 and E1 are carried across as shown, also at "W" the mould is produced exactly as at "Z" and divided up the same, the lines 1, 2, 3, 4 and 5 which are from the points where lines A, B, C, etc. intersect the edge of the mould, are then drawn across to "X" thus E1 is cut by 1, D1 by 2 etc. The points of intersection are joined as shown thus giving the correct projected form of the cutter.

This takes up considerable time to do for each shape of cutters required, and can be very much reduced by using the moulders rule as shown in Fig. 24. This is a graph on which the form can be plotted and automatically gives the necessary allowance on the depth of form.

When the mould is to be a standard a template should be made to the projected form to which the cutters can be shaped when the job repeats. This will ensure uniformity on all future runs.

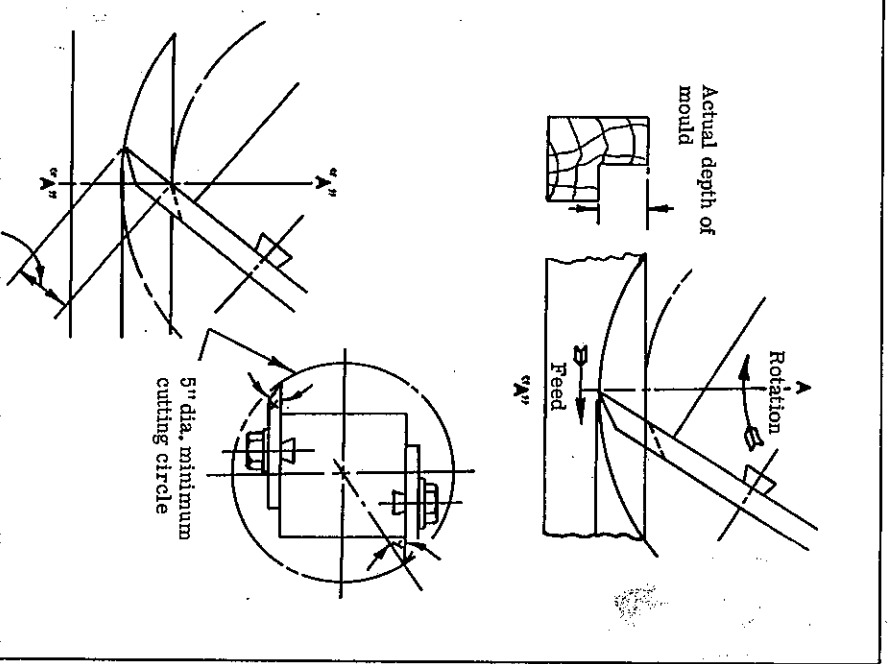


FIG 22.

Moulders Rule

A permanent moulders rule can be made by the customer in sheet brass and aluminium and will then be handy to use in the workshop.

To plot the form of a cutter by use of the moulder's rule it is necessary to draw the full size shape of the mould on tracing paper and rule $1/8"$ (3mm) squares as shown in Fig. 24. This is then placed alongside the moulders rule and projected across, this will give a series of dots which must be joined to give the form of the cutter. The cutter blank chosen must be wide enough to give at least $1/8"$ (3mm) overlap beyond the edge of the mould.

Cutter Grinding

Cutters should be ground carefully avoiding any overheating as this will crack or soften cutters so that they will not stand up to the work.

A solution of soluble oil and water should be handy and the cutters should be held in this occasionally to cool them. This solution will also prevent rusting. Cutters should never be allowed to become discoloured during grinding as this indicates overheating.

The correct cutting angle of 35° for most cutters should be maintained as this gives the correct strength of the cutting edge. When hollow grinding is carried out, the angle of the cutting edge, should be kept as near 35° as possible, see Fig. 25 (A) and (B).

Hollow grinding is recommended whenever possible, as a keen cutting edge is more easily obtained when hand lapping. When lapping or stoning a flat ground cutter, a good edge is more difficult to obtain due to the tendency to rock the stone and leave a convex face.

Good open grain wheels should be used and should not be allowed to become glazed as this will cause excessive heat.

About $12"$ (304mm) diameter wheels used down to $10"$ (254mm) give the best radius for a hollow grind and an economic life $8"$ (204mm) wheels used down to $6"$ (153mm) leave the grind too hollow.

Tungsten carbide tipped cutters should be purchased to the shape required and re-ground only as necessary. In this case cutters should be relieved at 35° on the steel position and the tips finished with a diamond impregnated wheel at 45° as shown, using only very light cuts to prevent cracking. The diamond wheel should not be allowed to touch the steel backing as this clogs the wheel and causes excessive heat. Where available a copious flow of coolant should be used. They may be honed with a diamond hand lap, as the cutter becomes dull, until a re-grind is necessary. A thin oil lubricant should be used on the hand lap.

All cutter blanks sent out by us are ground only, and, if used as chippers or rebate cutters, require honing with a 142 carborundum slip stone to produce a razor sharp edge before commencing to cut. This will ensure a good finish on the wood and an easy feed. Dull cutters give a poor, rough and plucked out finish, and make it difficult to feed the job past the cutters. Honing should be done by a reciprocating or rotary motion on the cutter, using a little paraffin to give "bite" to the stone. The honing stone is a much finer grit than the grinding wheel and leaves a sharp keen edge. A number of honing stones of different shapes, e. g. round sticks or square sticks will be found helpful in honing shaped cutters.

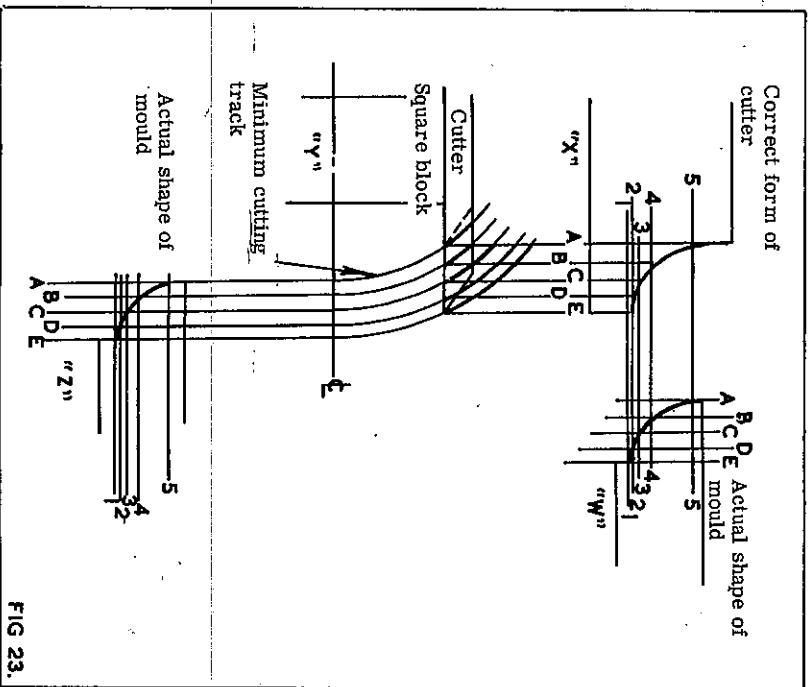


FIG 23.

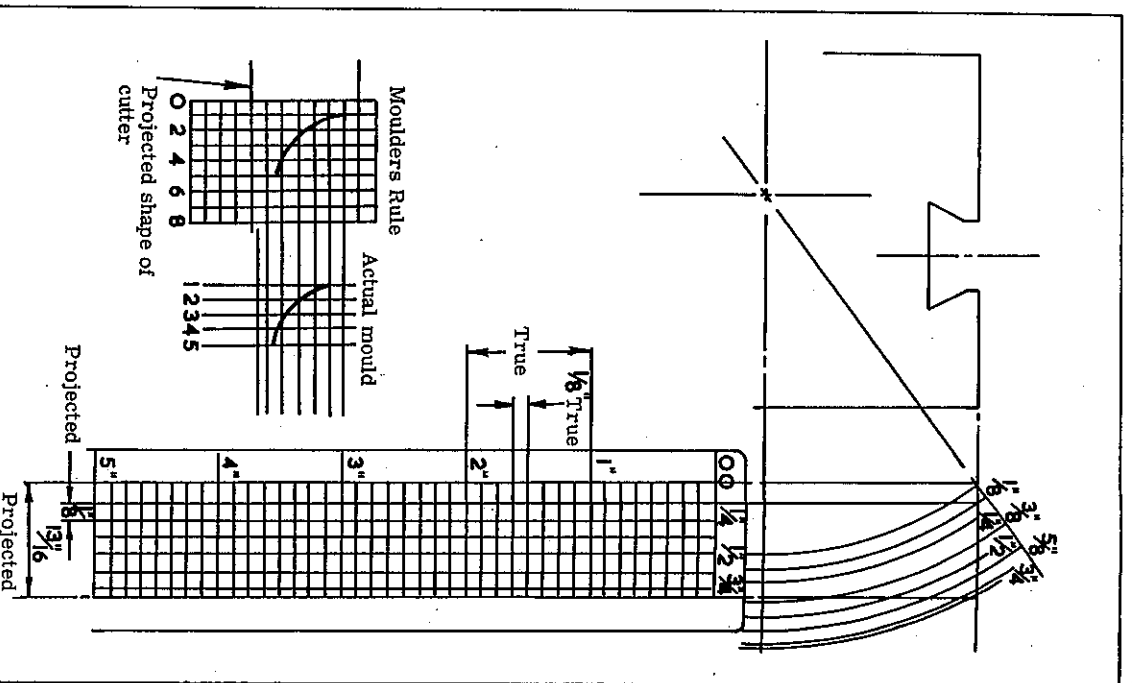


FIG 24

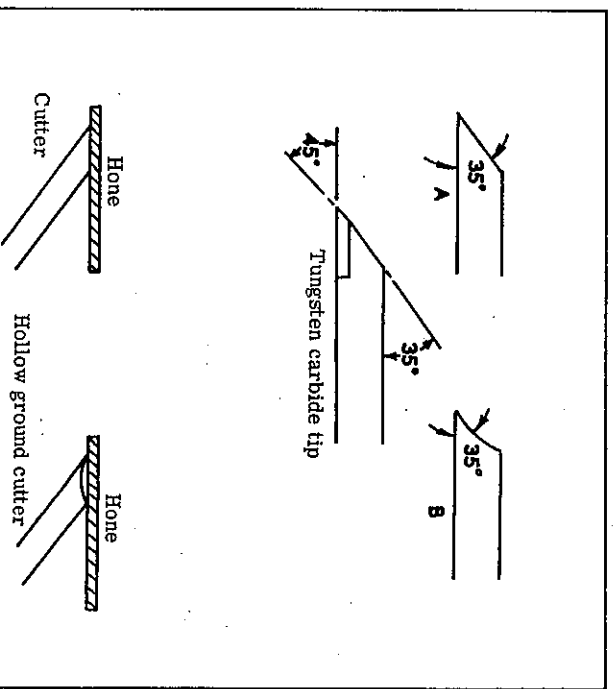


FIG 25

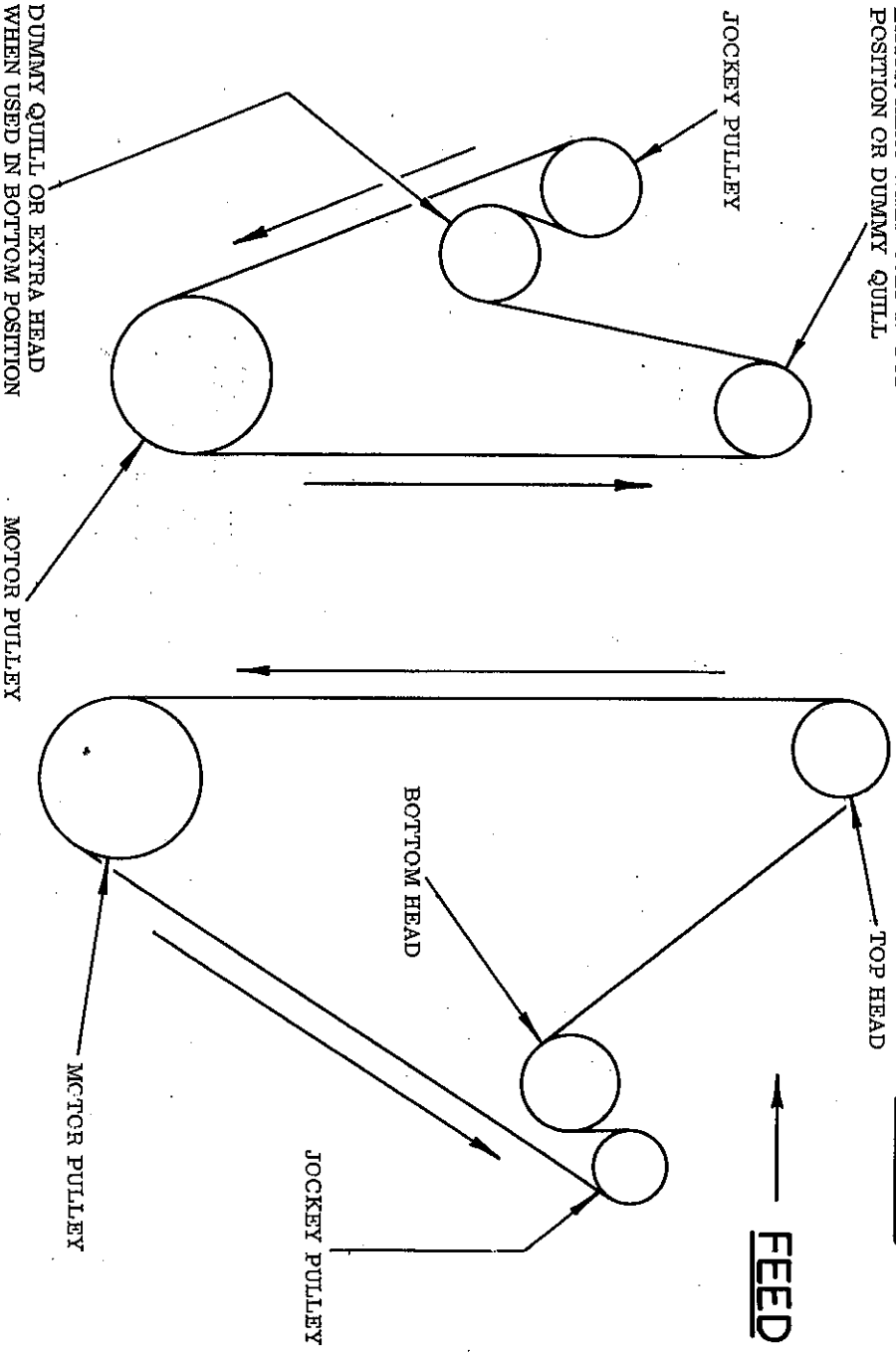
BELT DRIVE LAYOUT

EXTRA HEAD

FRONT SIDE VIEW

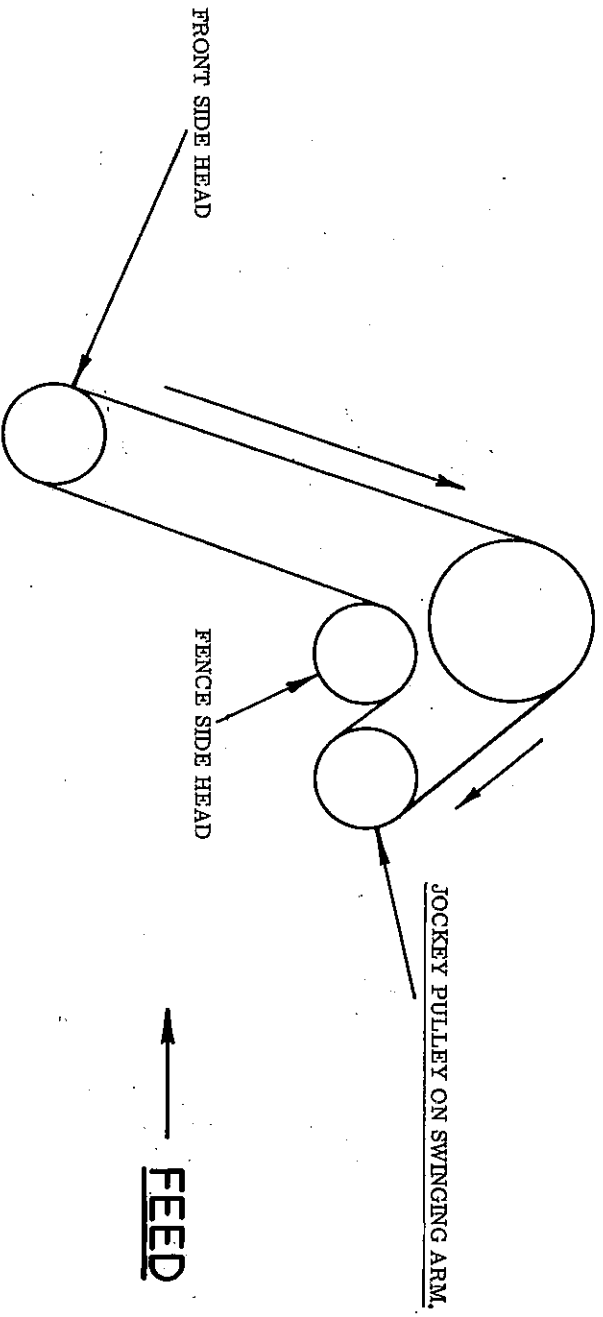
TOP & BOTTOM HEADS

EXTRA HEAD WHEN USED IN TOP POSITION OR DUMMY QUILL



PLAN VIEW

FENCE SIDE & FRONT SIDE HEADS



SIDE HEADS

1 - 54" long x 2" wide meteor flat belt, double faced type S.
(All frequencies)

TOP HEAD

1 - 75" long x 2" wide meteor flat belt double faced type S.
(All frequencies)

EXTRA HEAD

1 - 62" long x 2" wide meteor flat belt double faced type S.
(50 cycle)

1 - 60 1/2" long x 2" wide meteor flat belt double faced type S.
(60 cycle)

INSTRUCTIONS TO SET UP MACHINE

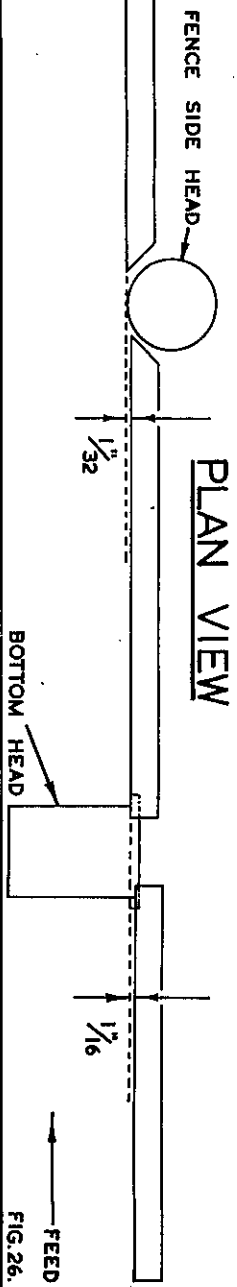


FIG. 26.

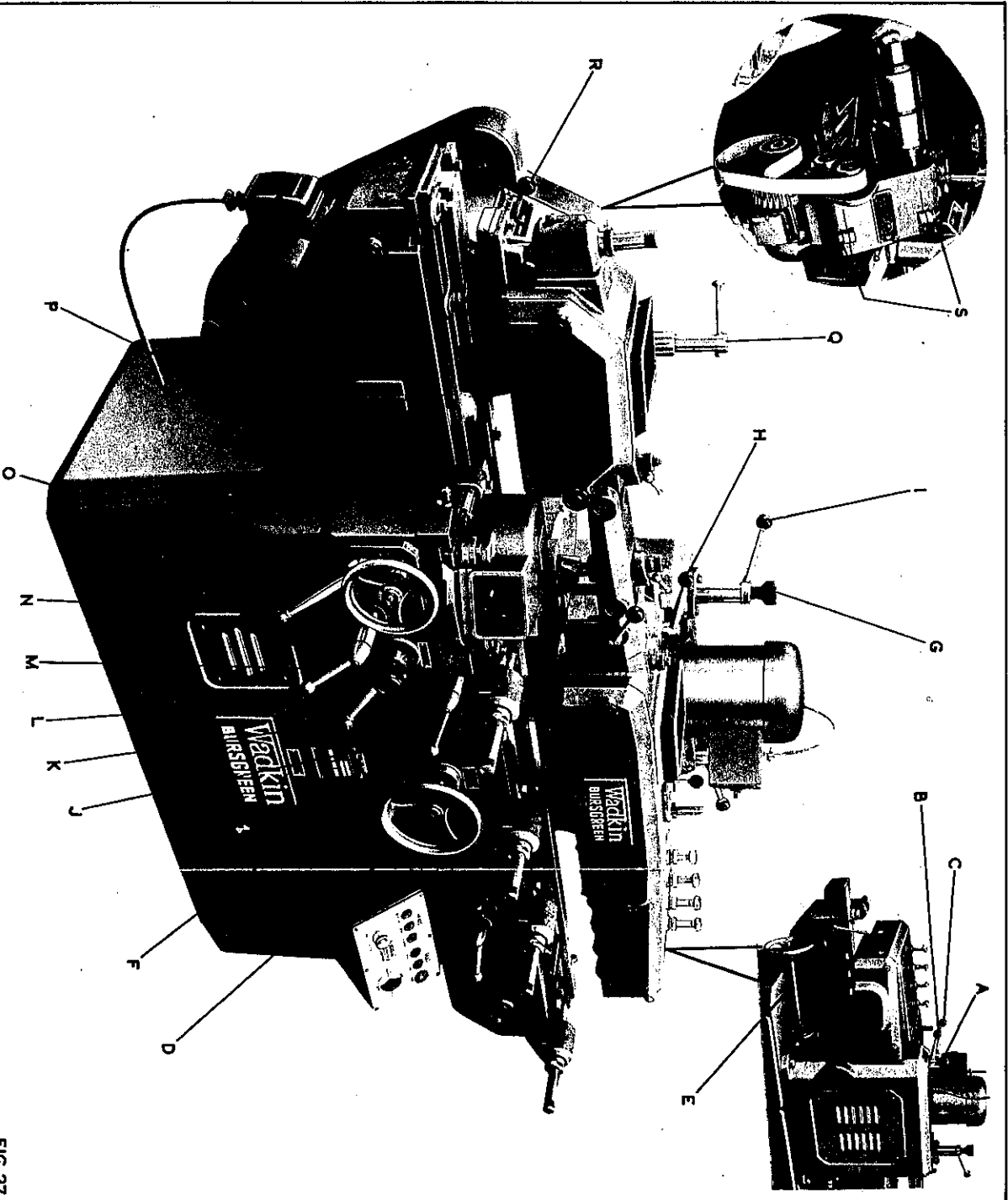


FIG. 27.

Upon leaving the works all machines have the infeed and outfeed fences pre-set to the centre fence which is non adjustable as illustrated in Fig. 26. These fences, when altering, must be kept parallel to the centre fence which can be accomplished by the use of a straight edge placed along the fences.

To set the machine to the shape and size of the mould required, the following procedure should be followed. This should be carried out by working along the machine starting at the first bottom head. Position the cutterblock vertically by means of the handwheel A in Fig. 27 until the minimum cutting circle is in line with the central bedplate. A rebate block is fitted to this head on the fence side to give a true feeding edge to the stock being worked. It is important that this block is in line to the centre fence so that good and regular feeding is obtained. Lateral movement is made to the head by the use of the handle C then both vertical and lateral adjustment can be locked simultaneously by means of the handle B.

Having set the bottom head, adjustment is now carried out on the top head. Vertical adjustment to this head is either by handwheel D or E which is to the rear of the infeed table. Handwheel D can be locked by means of the ball lever screw F. The head is mounted in an eccentric quill for fine adjustment and must be in its lowest position when working $\frac{3}{4}$ " stock or less. This can be accomplished by use of the fine adjustment handwheel G. Lateral movement is by the lever H with all movements locked by the lever I.

Adjustment of the fence side head can now be undertaken. On this head the cutting edge of the knives can be set in line with the outfeed fence according to the stock being worked. Vertical adjustment

is by means of the lever J and lateral adjustment by the handwheel L. Both movements are locked simultaneously by lever K.

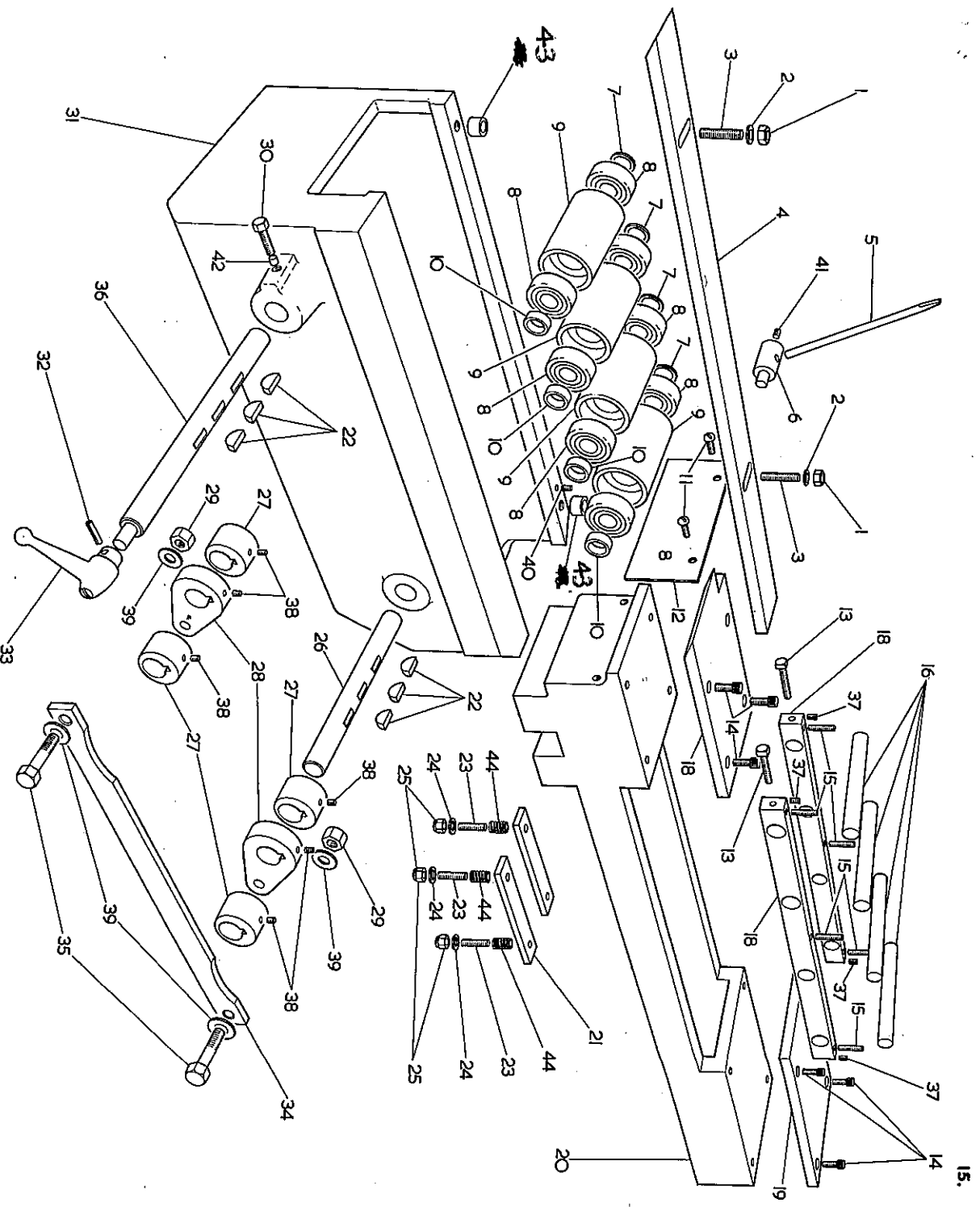
Similar procedure is then carried out on the front side head and this can now be set to the sample stock. Adjustment vertically is by lever M and locked by lever N. Lateral movement is made by the handwheel O which in turn is locked by the ball lever screw P.

On all machines an extra head can be fitted as an optional extra and, if fitted, can be used either in the top or bottom positions according to the stock to be worked. When using the head in the top position it can be set vertically to the sample stock by means of the handle Q and laterally by the handle R. Both adjustments are locked by the hexagon head nuts S. If the head is used in the bottom position the outfeedable must be adjusted to be in line with the cutting edge of the cutters. To adjust the head in the bottom position the same movements as in the top position apply.

Pressures are used along the machine to keep the stock being worked well up against either the fence or the bedplate. They must be set to suit the stock being worked as previously described.

Feed rollers should be adjusted to the correct pressure on the stock so as to give a smooth feeding action throughout the machine. This also has been previously described.

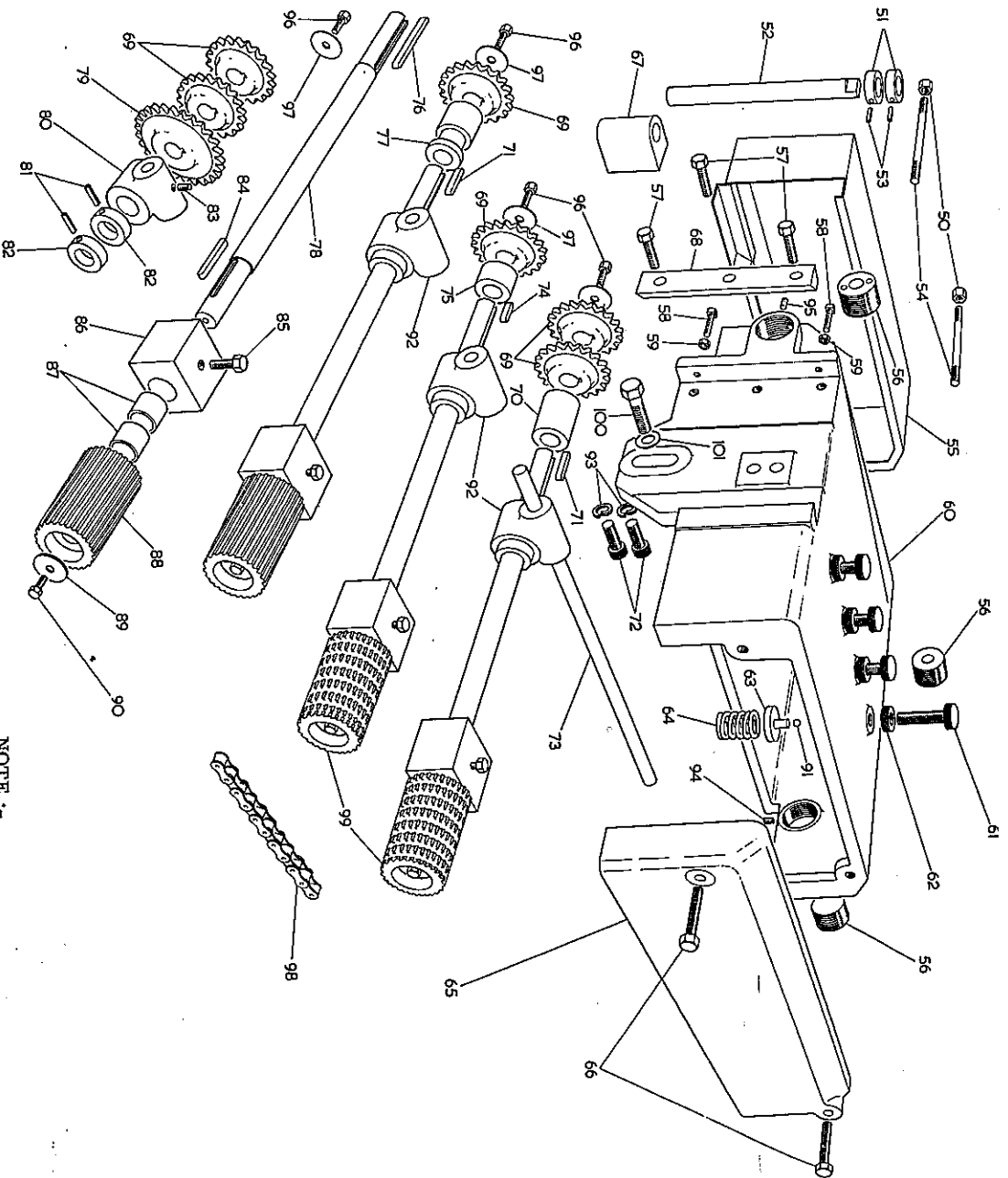
Before commencing to start the machine check carefully to ensure that all the cutters are tight and secure in their respective cutterblocks. Inch stock through the feed rollers checking that they have lifted to the horizontal position and are driving over the full face of the stock. Check that the pressures and fences are all set correctly before commencing to make the first mould.



INFEED TABLE ASSY

NOTE :-
When ordering replacement parts quote
part no. and serial number of the machine.

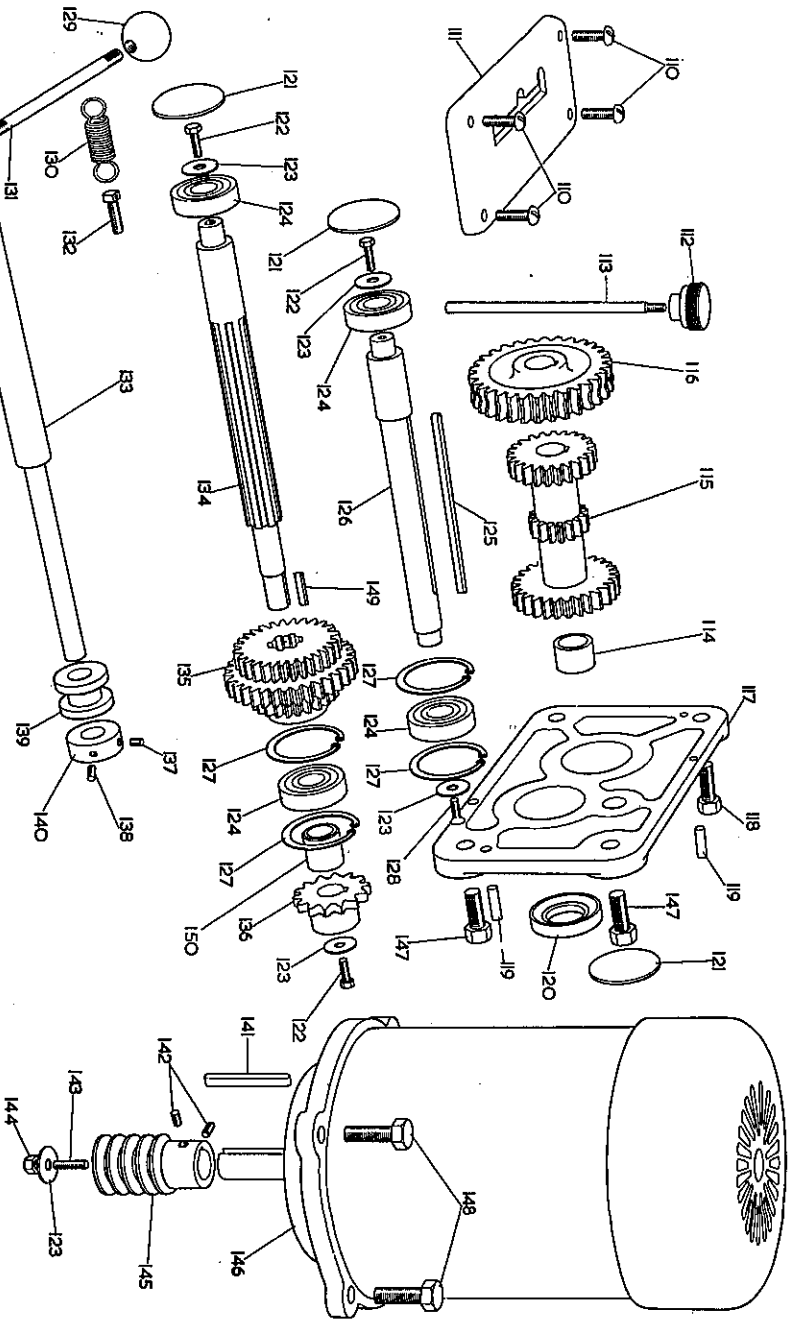
Ref.No	Part No.	No.Off	Description	Ref.No	Part No.	No. Off	Description
1		2	3/8" whit nut	24		4	5/16" washer
2		2	3/8" B. S. F. washer	25		4	5/16" whit arectight nut
3		2	3/8" whit x 1 1/4" long stud	26	B-1033/40	1	Under table cam shaft (without spigot)
4	B-1033/170	2	Infeed fence	27	A-1033/36	4	Under table cams
5	A-1033/280	1	Pointer	28	A-1033/38	2	Under table link for cams
6	A-1033/229	1	Pointer holder	29		2	3/8" whit arectight nut
7	A-1033/43	4	Under table roller distance piece (1/16" thick)	30		1	3/8" whit x 1/4" long hexagon headbolt
8	SN2075	8	Fischer bearings	31	D-1033/17	1	Front table bracket
9	B-1033/34	4	Under table roller	32		1	3/16" x 1" long groverlock spring
10	A-1033/43	4	Under table roller distance piece (3/8" thick)	33		1	Kripp handle No. 4, 5/8" whit (female) dowel
11	A-1033/240	2	1/4" whit x 5/8" Longround head screw	34	A-1033/39	1	Under table link
12		1	Infeed table chip deflector	35	A-1033/42	2	Under table links pivot pin
13		4	1/4" whit x 1" long square head bolt	36	B-1033/40	1	Under table cam shaft (with spigot)
14		8	5/16" whit x 5/8" long socket head cap screw	37		4	1/4" whit x 3/4" long socket head grubscrew
15		6	1/4" whit x 1" long socket head grubscrew	38		6	1/4" whit x 3/8" long socket head grubscrew
16	A-1033/41	4	Under table roller shafts	39		4	3/8" washer
17	B-1033/35	2	Under table roller blocks	40		1	1/4" whit x 1/2" long socket head grubscrew
18	B-1033/165	1	Front bed plate for infeed table	41		1	1/4" whit x 1/4" long socket head grubscrew
19	B-1033/166	1	Back bed plate for infeed table	42		1	5/16" o/d x 3/8" long brass bot
20	D-1033/18	1	Front table	43	A-1033/163	2	Infeed fence distance piece (1/2" long)
21	A-1033/37	2	Under table retaining strips	44	A-1029/55	4	Under table springs
22		6	5/16" woodruff key				
23		4	5/16" whit x 2" long stud				



FEED WORKS ASSY

NOTE :-
When ordering replacement parts quote
part no. and serial number of the machine.

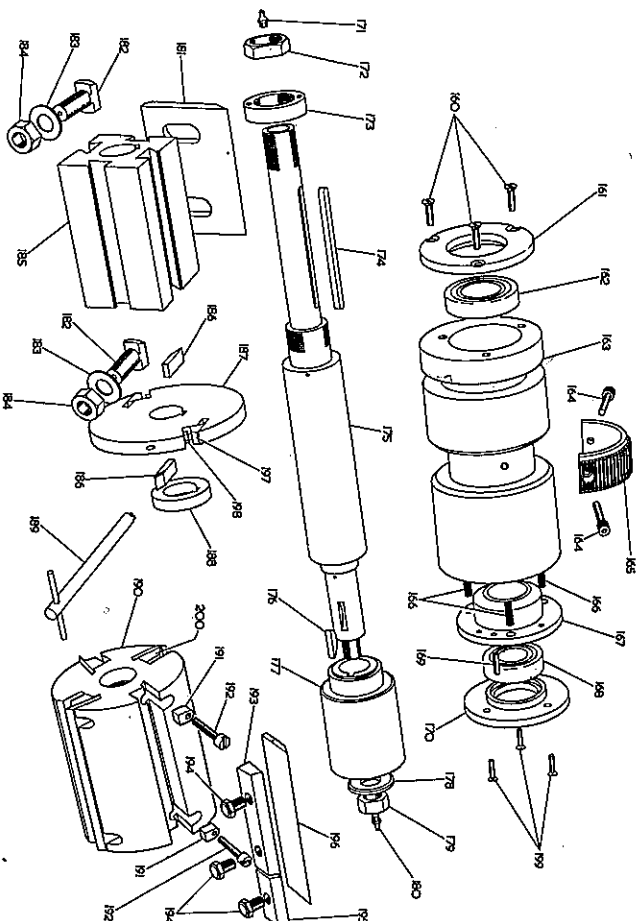
ref.No.	Part No.	No. Off	Description	Ref.No.	Part No.	No. Off	Description
50	A-1033/259	2	3/8" whit nut	79	A-1033/235	1	Feed roller sprocket (large)
51	A-1033/259	2	Collars for feed roller bracket R & F screw	80	B-1033/65	1	Feed roller pivot block (with 5/16" tapped hole)
52	A-1033/110	1	Feed roller bracket R & F screw	81		8	3/16" whit x 1 1/2" long groverlock spring dowel
53		2	3/16" x 1 1/4" groverlock spring dowel	82	A-1033/261	8	Collar for feed roller
54		2	3/8" whit x 5" long stud	83		1	5/16" whit x 5/8" long socket head grub screw
55	C-1033/5	1	Chain cover	84		4	3/8" x 2" long feather key
56	A-1033/107	3	Feed roller pivot thrust screw	85		4	3/8" whit x 1/2" long hexagon head bolts
57		3	3/8" whit x 1 1/4" long hexagon head bolt	86	B-1033/80	4	Feed roller pressure block
58		2	1 1/4" whit x 1 1/4" long square headbolt	87		16	1" 1/4 x 1 1/4" o/d x 1" long oilite bush
59		2	3/4" whit locknut	88	B-1033/101	2 Off	Feed roller spiral fluted only
60	D-1033/21	1	Feed roller bracket	89	A-1002/40	4	1 1/4" dia feed roller retaining washer
61	A-1810/81	4	Feed roller pressure spring	90		4	3/8" whit x 1" long hexagon head bolts
62	A-1810/112	4	Feed roller pressure spring	91		4	3/8" dia steel ball
63	A-1033/9	4	adjusting lock nut	92	B-1033/65	3	Feed roller pivot block
64	A-1033/300	4	Seatings for feed roller springs	93		2	1/2" spring washer
65	C-1033/206	1	Feed roller springs	94		2	5/16" whit x 3/8" long socket head grub screw
66		2	Door for feed roller bracket 3/8" whit x 2" long hexagon head bolts	95		1	5/16" whit x 5/16" long socket head grub screw
67	A-1033/105	1	Feed roller bracket R & F nut	96		4	Renolds chain:- 39 links + cranked washer
68	B-1033/102	1	Feed roller bracket vee strip	97		4	Renolds chain :- 51 links + cranked link + 2 split pins
69	B-1033/294	1	Feed roller sprocket (19teeth)	98	A-1033/280	2 Off	Renolds chain :- 63 links + split pin
70	B-1033/293	6	Feed roller distance piece (7/8" long)	99	B-1033/101	1 Off	Feed roller spiral fluted and grooved
71		2	1 1/4" x 3/4" long feather key	100		1	3/8" whit x 1 1/2" long hexagon headbolt
72		2	3/4" whit x 1 1/4" long socket head cap screw	101		1	3/4" whit washer
73	A-1033/108	1	Feed roller pivot bar				
74		1	1 1/4" x 1 1/4" long feather key				
75	B-1033/293	1	Feed roller distance piece (1 3/4" long)				
76		1	1 1/4" x 2 1/2" long feather key				
77	B-1033/293	1	Feed roller distance piece (2.5/8" long)				
78	B-1033/100	4	Feed roller spindle (state which one required)				



GEARBOX ASSY

NOTE :-
When ordering replacement parts quote
part no. and serial number of the machine.

Ref. No	Part No.	No. Off	Description	Ref. No	Part No.	No. Off	Description
110	B-1033/27	4	¾" whit x 1" long round head screw	135	B-1033/23	1	Output gear train
111	A- " /185	1	Faceplate for gear change	136	A- " /232	1	Gearbox sprocket
112	A- " /185	1	Handle for gearbox oil lever dip stick	137		1	¾" whit x 3/8" long socket head grubscrew
113	A- " /185	1	Gear oil lever dip stick	138	A-1033/30	1	¾" whit x ½" socket head grubscrew
114	A- " /28	1	Input shaft distance piece	139		1	Gear change bush
115	B- " /22	1	Input gear chain	140	A-1033/31	1	Gear change collar
116	B- " /73	1	Wormwheel for 3 phase motor	141		1	3/16" x 2" long feather key
117	C- " /8	1	Gearbox Cover	142		2	¾" whit x ¼" long socket head grubscrew
118		2	3/8" whit x 1¼" long hexagon head Bolt	143		1	¾" whit x 1¼" long stud
119		2	¾" dia x 1" long fluted dowel	144		1	¾" whit arceight nut
120	WT18510239R4	1	Weston Oil Seal	145	B-1033/73	1	Worm for 3 phase motor
121		3	2" dia walth washer	146		1	Brook motor, 3HP, 3000rpm
122		3	¾" whit x 1" long hexagon head bolt			1	T. E. F. C. Frame M. 66B, with four lug endshield (50 cycles, 1 speed)
123	A-1033/280	4	Washer for gearbox shaft			1	Brook motor, 3HP, 3600 rpm
124		4	Hoffman 120 Bearing			1	T. E. F. C. Frame M66B, with four lug endshield (60 cycle, 1 speed)
125	A-1033/274	1	Key for gearbox input shaft			1	Brook motor, 3HP, 3600 rpm
126	B- " /24	1	Input shaft			1	T. E. F. C. Frame M66B, with four lug endshield (60 cycle, 1 speed)
127		4	47mm internal circlip			1	Brook motor, 2HP/1HP, 3000/1500 rpm
128		1	¾" whit x 1" long socket head counter sunk screw			1	T. E. F. C. Frame M66B with four lug endshield (50 cycle 2 speed)
129		1	1¼" dia Plastic Ball, 3/8" whit without insert			1	Brook motor, 3HP, 3600/1800 rpm
130	A-1029/67	1	Gearchange lever spring			2	T. E. F. C. Frame M66B, with four lug endshield (60 cycle, 2 speed)
131	A-1002/90A	1	Gearchange lever handle			2	3/8" whit x 1¼" Long hexagon head bolt
132	A-1029/68	1	Gearchange lever spring holder bolt	147			
133	B-1033/26	1	Gear Lever			4	¾" whit x 1" long hexagon head bolt
134	B-1033/25	1	Output Shaft	148			



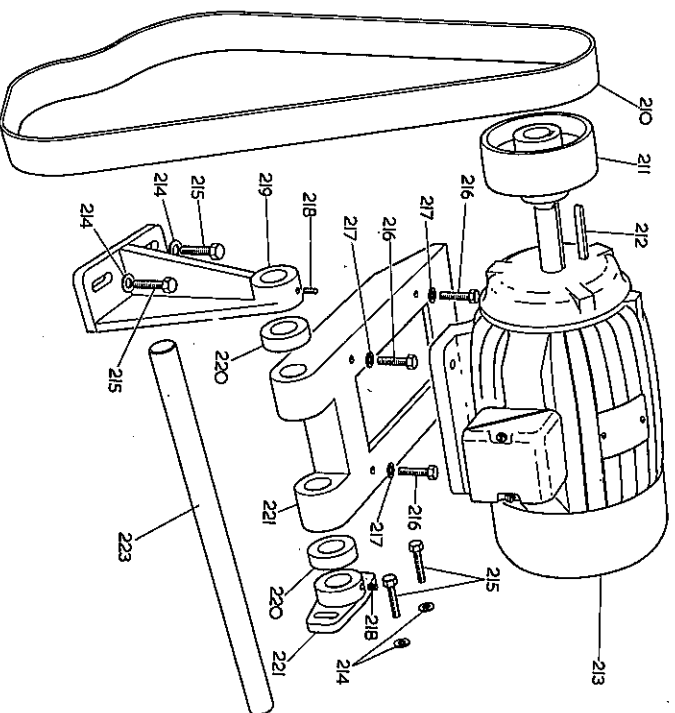
SPINDLE ASSEMBLY

160	5/16" whit x 1" long CSK head screw	12	
161	Extra head "ditto"	3	
162	Thrust end dust cap	4	
163	Extra head "ditto"	1	
164	Hoffman 145 bearing	4	
165	Extra head "ditto"	1	
166	Bearing housing (state head required for)	4	
167	Extra head "ditto"	1	
168	5/16" whit x 1" long socket head allscrew	6	
169	Racked quadrant for bearing housing (state head required for)	3	
170	Springs for spindle end float	12	
171	Extra head "ditto"	3	
172	Float end inside dust cap	4	
173	Extra head "ditto"	4	
174	Hoffman 135 bearing	4	
175	Extra head "ditto"	4	
176	3/16" x 1 1/4" groverlock dowel	1	
177	Float end outside dust cap	4	
178	Extra head "ditto"	1	
179	1/8" gas straight grease nipple	4	
180	Extra head "ditto"	1	
181	Top head cutterblock locknut (R, H, thread)	1	
182	Metric top head cutterblock locknut (R, H, thread)	1	
183	Metric bottom head cutterblock locknut (L, H, thread)	1	
184	Front side head cutterblock locknut (R, H, thread)	1	
185	Extra head "ditto"	1	
186	Metric front side head cutterblock locknut (R, H, thread)	1	
187	Extra head "ditto"	1	
188	Metric front side head cutterblock locknut (R, H, thread)	1	
189	Fence side head cutterblock locknut (L, H, thread)	1	
190	Extra head "ditto"	1	
191	Metric fence side head cutterblock locknut (L, H, thread)	1	
192	Extra head "ditto"	1	
193	Metric extra head "ditto"	1	
194	2 per extra head (state spindle dia)	2	
195	Spindle locknut (L, H, thread) (1 per front side head, 1 per bottom head)	2	
196	Spindle locknut (R, H, thread) (1 per top head)	2	
197	Spindle locknut (R, H, thread) (1 per extra head)	2	
198	Key for horizontal heads	2	
199	Extra head "ditto"	2	
200	Key for vertical heads	2	
	Cutterhead spindle (state spindle end dia and head required for)	4	
	Extra head "ditto"	1	
	5/16" woodruff key	4	
	Extra head "ditto"	1	
	197 A-1033/219	2	
	198 A-1033/220	2	
	199	12	
	200 A-1033/233	4	
	2	2	

NOTE :-

When ordering replacement parts quote part no. and serial number of the machine.

- 2 3/8" whit L, H, nut (1 per fence side head, 1 per top head)
- 1 3/4" whit L, H, nut (Extra head)
- 2 1/8" gas straight grease nipple (horizontal heads)
- 1 Extra head "ditto"
- 2 1/8" gas angled grease nipple (vertical heads)
- 2 pair Standard knives for square blocks (horizontal heads 4 3/4" long)
- 1 pair Extra head "ditto"
- 2 pair Standard knives for square blocks (vertical heads, 3 3/4" long)
- 4 Square cutterblock bolt
- 4 Extra head "ditto"
- 4 Square cutterblock washer
- 4 Extra head "ditto"
- 16 Square cutterblock nut
- 2 Standard horizontal cutterblock
- 2 Standard vertical cutterblock
- 2 Rebate block cutter
- 1 Rebate cutterblock for bottom head
- 1 Bottom head spindle distance piece 5/8" long
- 1 Top head "ditto" 1 1/4" long
- 1 Extra head "ditto" 1 1/4" long
- 1 Bottom head spindle distance piece (metric spindle machine)
- 2 Side head spindle distance piece 1 1/4" long
- 1 Adjusting spanner for circular cutterblock cutters (special)
- 2 Horizontal circular cutterblock (Special)
- 1 Extra head "ditto"
- 2 Vertical circular cutterblock (Special)
- 16 No. 2 adjusting nuts (Special)
- 4 Extra head "ditto"
- 16 No. 2 adjusting screws (Special)
- 4 Extra head "ditto"
- 4 3 1/4" long horizontal head circular Cutterblock wedges (Special)
- 8 Vertical head "ditto"
- 2 Extra head "ditto"
- 8 1/2" whit circular cutterblock wedge screw (Special)
- 10 Extra head "ditto"
- 2 1 1/2" long circular cutterblock wedges (Special)
- 2 Extra head "ditto"
- 4 4 3/4" long knives for horizontal heads circular cutterblock (Special)
- 2 Extra head "ditto"
- 4 3 1/4" long knives for vertical heads circular cutterblock (Special)
- 2 Wedge for rebate block
- 2 5/16" BSR wedge screws
- 12 1/4" whit x 5/8" long CSK head screw
- 3 Extra head "ditto"
- 4 4 3/4" long horizontal circular cutterblock wedges (Special)
- 2 Extra head "ditto"

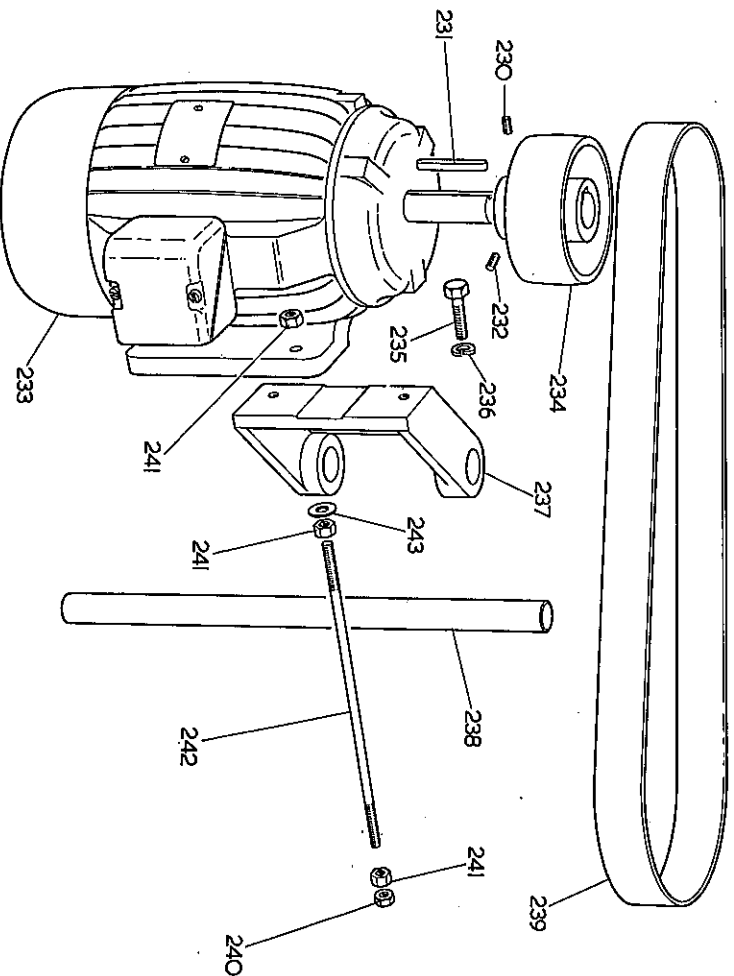


NOTE :-

TOP HEAD MOTOR MOUNTING ASSEMBLY

When ordering replacement parts quote part no. and serial number of the machine.

Ref. No.	Part No.	No. Off	Description	Ref. No.	Part No.	No. Off	Description
210		1	75" long x 2" wide Meteor flat belt double faced, type S	214		4	3/8" washer
211	B-1033/16	1	50 cycle motor pulley	215		4	3/8" whit x 1" long hexagon head bolt
212	B- " /265	1	60 cycle motor pulley	216		4	3/8" whit x 1 1/4" long hexagon head bolt
213		1	3/8" wide x 4" long Feather key	217		4	3/8" spring washer
		1	Brook motor, frame D. 213, 7 1/2HP T. E. F. C., 3000rpm, foot mounted 3phase 50 cycles	218		2	5/16" whit x 5/8" long socket head grubscREW
		1	Brook "Kompact" motor, Frame L213T, 7 1/2HP T. E. F. C., 3600rpm foot mounted, 3 phase 60cycles	219	C-1033/272	1	Back horizontal motor pivot bracket
				220	A- " /202	2	Motor pivot bar collar
				221	C- " /82	1	Top and bottom heads motor bracket
				222	B- " /271	1	Front horizontal motor pivot bracket
				223	A- " /174	1	Motor Pivot bar

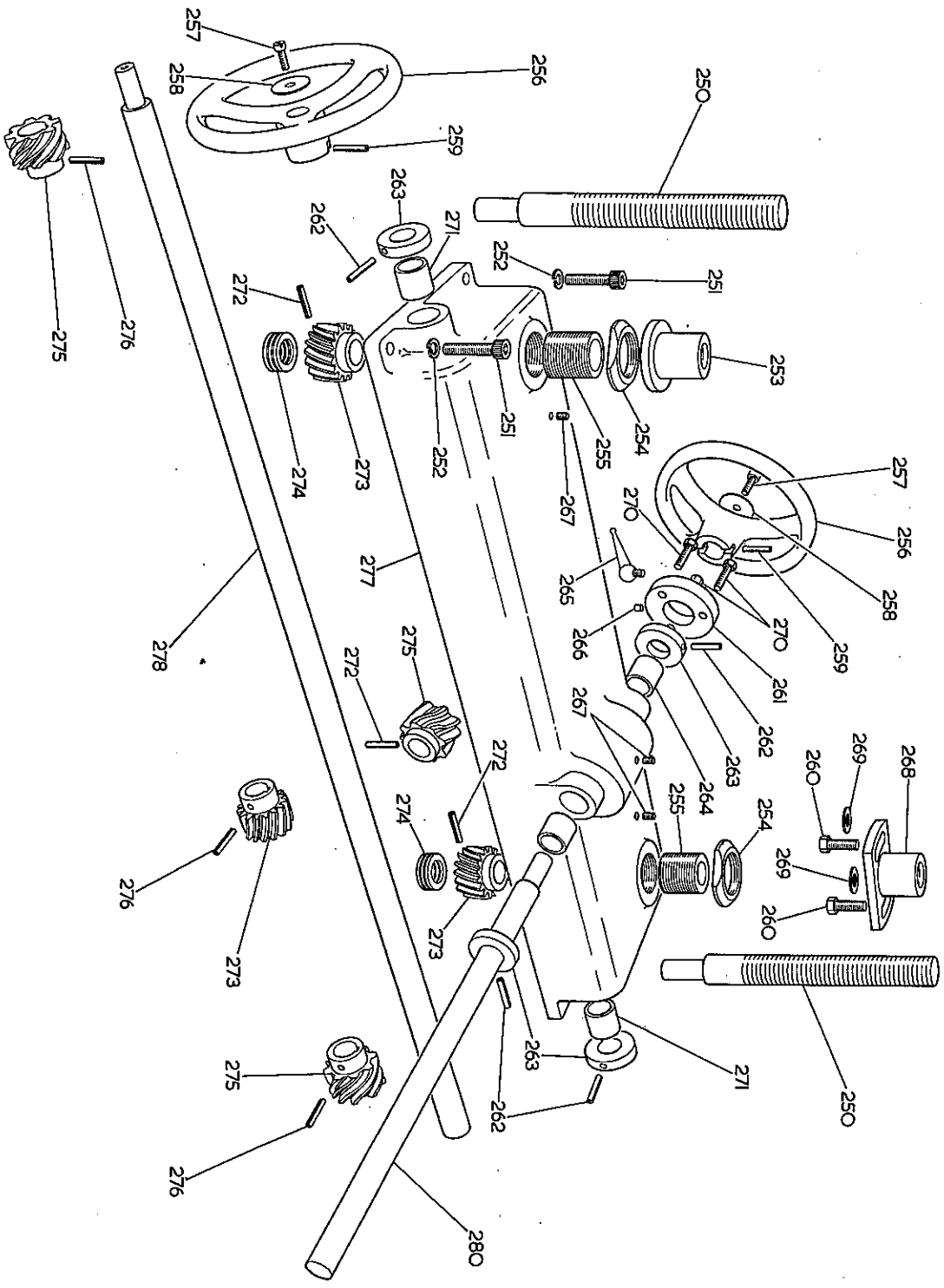


NOTE :-

SIDE HEAD MOTOR MOUNTING ASSEMBLY

When ordering replacement parts quote part no. and serial number of the machine.

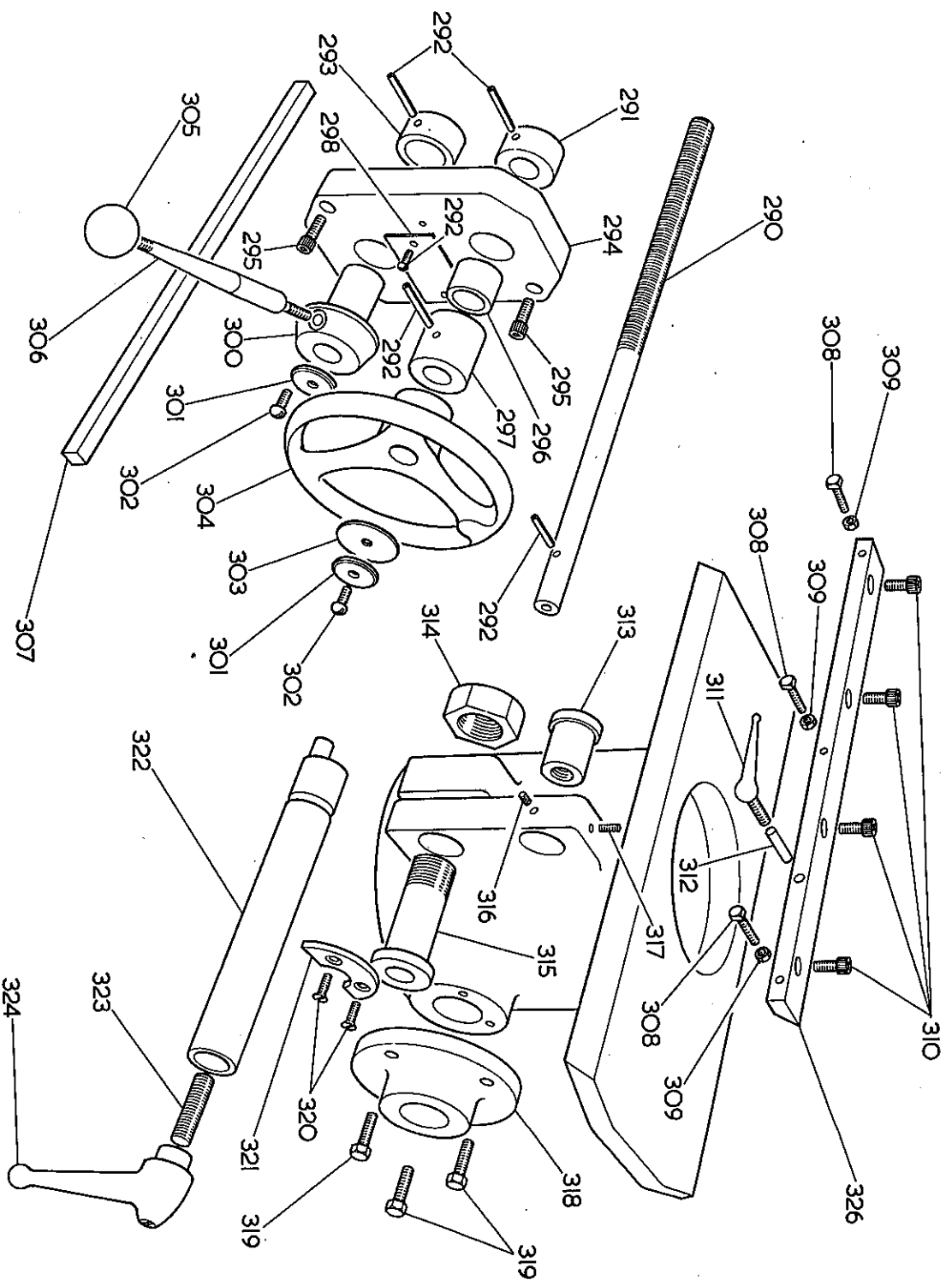
Ref. No.	Part No.	No. Off	Description	Ref. No.	Part No.	No. Off	Description
230		1	1/8" gas x 3/8" long socket head grubscREW	235		2	3/8" whit x 1 1/4" long hexagon head bolt
231		1	5/16" whit x 3" long Feather key	236		2	3/8" dia washer
232		1	1/8" gas x 5/8" long socket head grubscREW	237	B-1033/81	1	Side head motor bracket
233		1	Brook motor Frame D. 184, 5HP 3,000rpm T. E. F. C., foot mounted 3 phase, 50 cycle	238	A-1033/174	1	Motor pivot bar
		1	Brook "Kompact" motor Frame LS184T, 5HP 3,600rpm, T. E. F. C. Foot mounted 3phase 60 cycles	239		1	54" long x 2" wide Meteor flat belt, double faced, type S
				240		1	3/8" whit locknut
				241	A-1033/175	3	3/8" whit nut
				242		1	Side heads motor locking stud
				243	A-1002/40	1	Washer



RISE & FALL ASSEMBLY

NOTE :-
When ordering replacement parts quote
part no. and serial number of the machine.

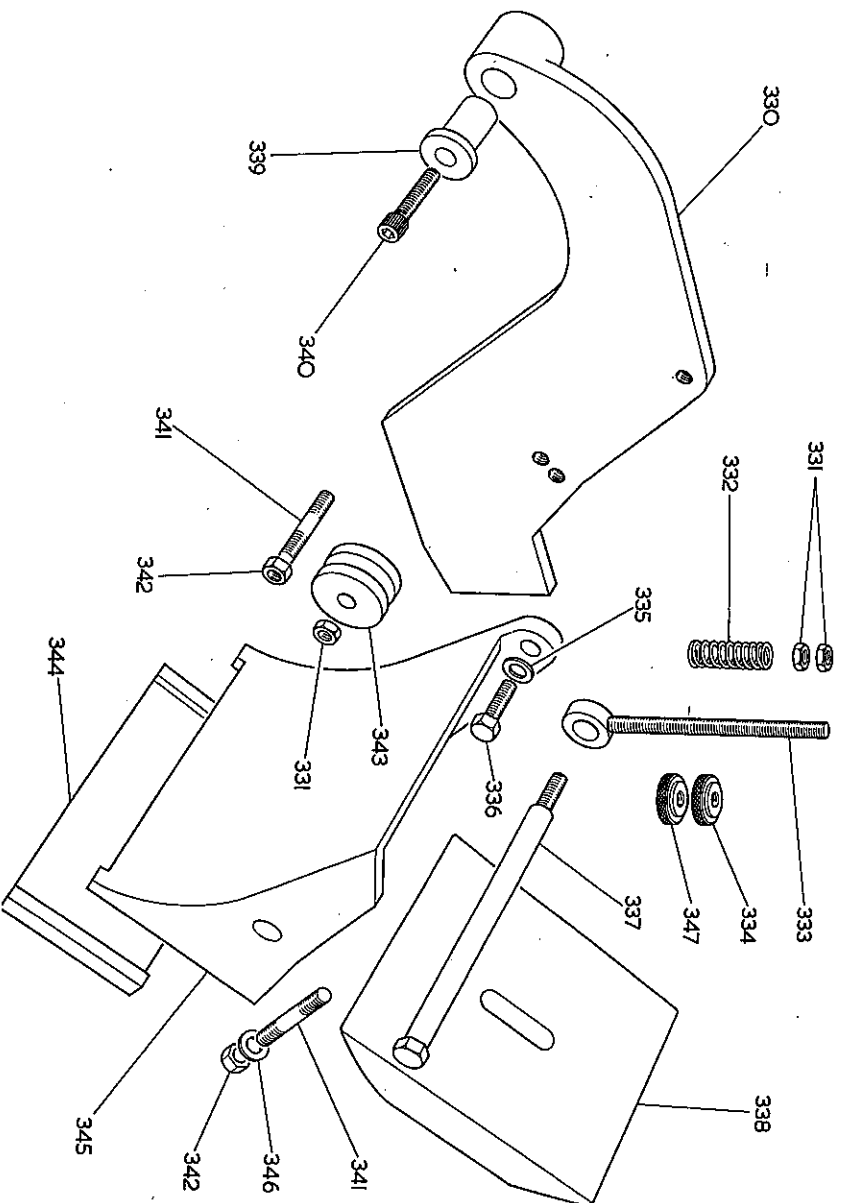
Ref No.	Part No.	No. Off.	Description	Ref No.	Part No.	No. Off.	Description.
250	B-1033/52	2	Top head R & F screw	266	B-1033/20	1	5/16" x 3/8" long brass bot
251		4	1/2" whit x 1 1/2" long socket head capscrew	267		3	1/8" gas x 3/8" long socket head grubscrow
252		4	1/2" whit spring washer	268		1	Main bracket R & F nut (Flanged)
253	B-1033/19	1	Main bracket R & F nut (plain)	269		2	3/8" whit washer
254	A-1033/53	2	Locknut for R & F screw adjuster	270		3	5/16" whit x 1" long hexagon head bolts
255	A-1033/164	2	Top head R & F adjusting screw	271		4	1 1/4" o/d x 1" i/d x 1 1/2" long oilite bush
256	C-1030/14	2	7 1/2" dia. Dished handwheel (for R & F)	272		3	1 1/4" x 1 1/2" long groverlok dowel
257		2	5/16" whit x 3/4" long cheese head screw	273	A-1033/205	3	Spiral gear for main R & F Hoffmann thrust race
258	A-1031/70	2	Washer	274	W. I. B.	2	Spiral pinion for main R & F
259		2	3/16" x 1 1/2" long groverlok dowel	275	A-1033/204	3	1 1/4" x 1 1/2" long groverlok dowel
260		2	3/8" whit x 1" long hexagon head bolts	276		3	R & F bracket
261	A-1033/93	1	Outer bearing for top head R & F shaft	277	D-1033/1	1	Top head R & F shaft
262		4	3/16" x 1 1/2" long groverlok dowel	278	B-1033/50	1	1 1/4" o/d x 1" i/d x 1" long oilite bush
263	A-1033/258	4	Collar for R & F handwheel shaft	279		1	Top head R & F handwheel shaft
264		1	1 1/4" o/d x 1" i/d x 2" long oilite bush	280	B-1033/51	1	
265		1	3/8" whit short thread ball lever screw				



NOTE :-
 When ordering replacement parts quote
 part no. and serial number of the machine.

FRONT SIDE HEAD ASSEMBLY

Ref.No.	Part No.	No. Off	Description	Ref.No	Part No.	No. Off	Description
290	B-1033/96	1	Front side head adjusting screw	309		3	1/4" whit locknuts
291	A-1033/259	1	Collar for side head adjustment screw	310		4	3/8" whit x 3/4" long socket head cap screw
292		4	3/16" x 1 1/4" long Groverlock spring dowel				Screw
293	A-1033/261	1	Collar for front side head lock	311	B-S-1-B	1	3/8" whit ball lever screw
294	B-1033/56	1	Front side head cover plate	312		1	5/16" dia x 2 3/4" long brass bot
295		2	5/16" whit x 1" long socket head cap screw	313	A-1031/58	1	Nut for front side head
				314	A-1033/106	1	Front side head locking nut
296		1	3/4" o/dia x 1" o/dia x 3/4" long oilite bush	315	B-1033/98	1	Front side head locking screw
297	A-1033/95	1	Spacing collar for front head adjustment	316		1	1" whit x 1/4" long socket head grubscREW
298	C-SK-528/D	1	Instruction plate for front side head	317		1	1/2" whit x 3/4" long socket head grubscREW
299	Z4	2	1/4" self tapping screw	318	B-1033/79	1	Bearing for front side head R & F eccentric
300	B-1033/99	1	Front side head locking collar	319		3	5/16" whit x 1" long hexagon head bolts
301	A-1033/280	2	Washer for front side head lock	320		2	1/2" whit x 3/4" long CSK head screw
302		2	4" whit x 2" long round head screw	321		1	Front side head eccentric pin keep plate
303	C-SK-528/M	1	Instruction plate for front side head handheel	322	A-1033/109	1	Front side head eccentric pin keep plate
304	B-1033/92	1	Dished handheel for front side head	323	A-1033/103	1	Front side head R & F eccentric
305		1	1 1/4" dia plastic ball, 3/8" whit	324	A-1033/268	1	Stud for front side head eccentric
306	B-1027/46	1	Locking handle (5" long)			1	No. 4 kipp handle, 5/8" whit female
307	A-1033/96	1	Front side head locking bar			1	Front side head housing
308		3	1/4" whit x 3/4" long square head bolts			1	Front side head gth strip.

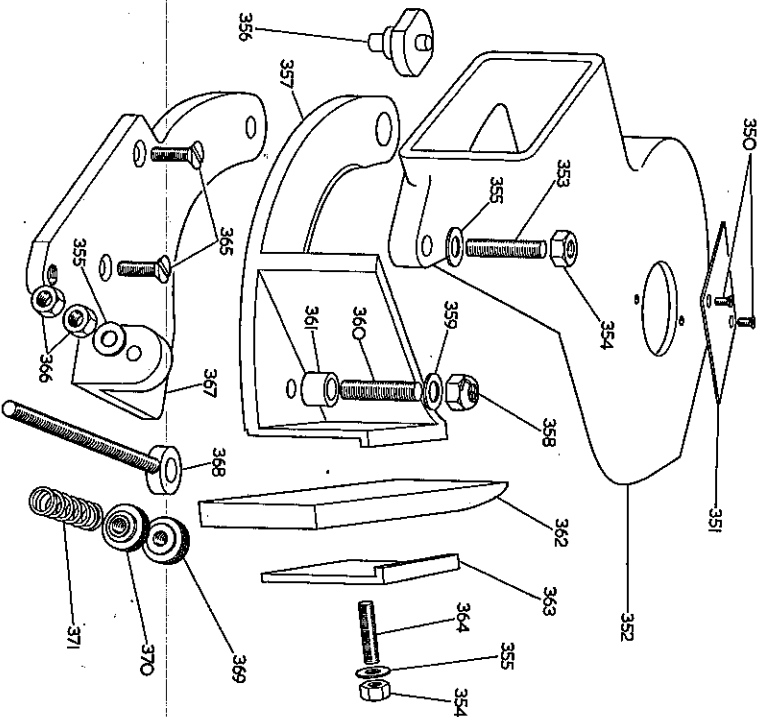


TOP & EXTRA HEAD CHIPBREAKER ASSEMBLY

NOTE :-
When ordering replacement parts quote part no. and serial number of the machine.

Ref.No.	Part No.	No.OH	Description
330	C-1033/251	1	Top head chip breaker plate
331	C-1033/250	1	Extra head "ditto"
332	A-1033/195	3	3/8" whit locknut
333	A-1033/111	1	Spring for top head chip breaker
334	A-1033/239	1	Chip breaker stop screw
335		1	Knurled knob for chip breaker
336		1	3/8" B. S. F. washer (thick)
337	A-1033/198	1	3/8" whit x 1" long hexagon head bolt
338		1	Pivot pin for chip breaker screw
339		1	Wood chip breaker shoe

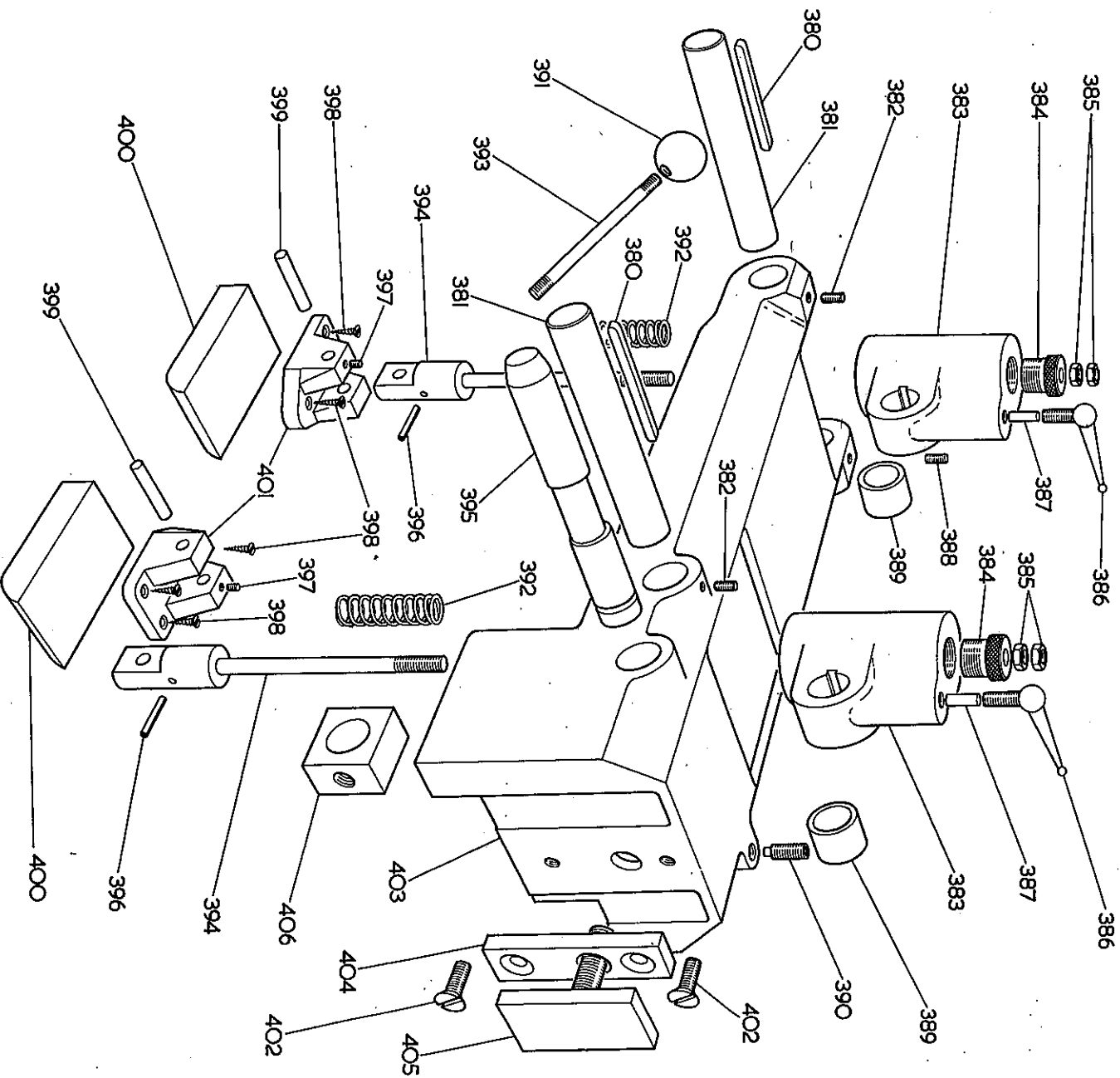
Ref.No.	Part No.	No.OH	Description
339	A-1033/301	1	Chip breaker pivot bush
340		1	3/8" whit x 1 1/2" long socket head cap head screw
341		2	3/8" whit x 2 1/4" long stud
342		1	3/8" whit nut
343	A-1033/253	1	Chip breaker trapping collar
344	B-1033/115	1	Wood pressure trapping plate
345	C-1033/72	1	Extra head "ditto"
346		1	Chip breaker bracket
347	A-1033/239	1	3/8" whit washer
348		1	Knurled knob for chip breaker (with spigot)



SIDE HEAD CHIPBREAKER ASSEMBLY

Ref.No.	Part No.	No.OH	Description
350		2	3/16" whit x 3/8" long C. S. K. head screw
351	A-1033/198	1	Sheet steel cover for side head
352	C-1033/70	1	Front side head hood
353		1	3/8" whit x 1 1/2" long stud
354		2	3/8" whit nut
355		3	3/8" whit washer
356	A-1033/181	1	Side head chip breaker pivot
357	C-1033/69	1	Side head chip breaker
358		1	1/4" whit aerotight nut
359		1	1/2" whit washer
360	A-1033/285	1	Distance piece for side head chip breaker
361		1	Wood pressure pad
362		1	Front side head wood pressure trapping plate
363	A-1033/113	1	3/8" whit x 2" long stud
364		2	3/8" whit x 1" long C. S. K. head screw
365		2	3/8" whit locknut
366		1	Side head chip breaker pivot plate
367	C-1033/68	1	Chip breaker stop screw
368	A-1033/111	1	Knurled knob for chip breaker
369	A-1033/239	1	Knurled knob for chip breaker (with spigot)
370	A-1033/239	1	Pressure sp. ling for side head chip breaker
371	A-1033/196	1	

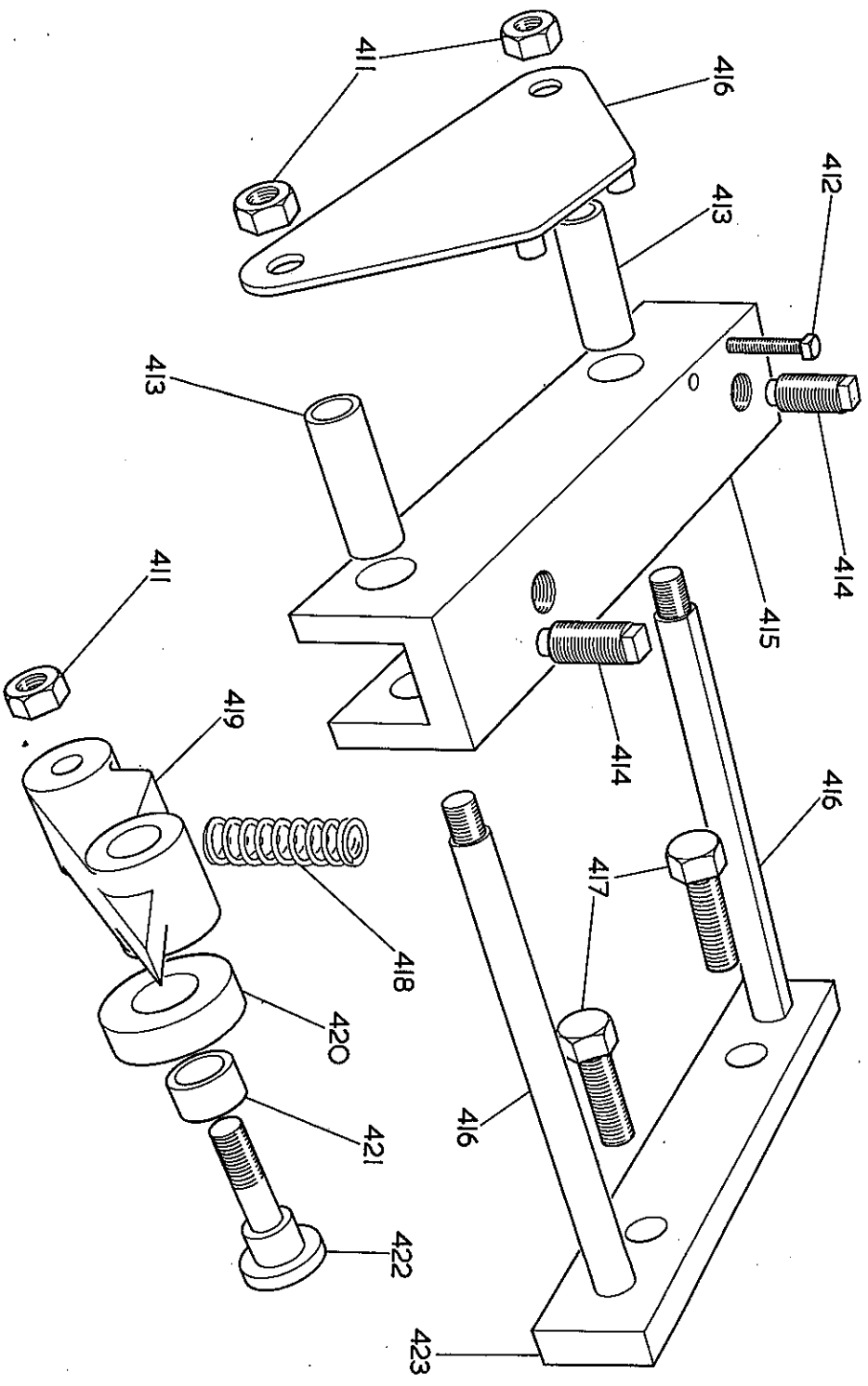
NOTE :-
When ordering replacement parts quote part no. and serial number of the machine.



PRESSURES OVER SIDE HEAD ASSEMBLY

NOTE :-
When ordering replacement parts quote part no. and serial number of the machine.

Ref.No	Part No.	No. Off	Description	Ref.No.	Part No.	No. Off	Description
380		2	$\frac{1}{4}$ " wide x 3" long feather key	394	B-1033/152	2	Top pressure rod
381	A-1033/87	2	Top pressure slide bar for side head	395	A-1033/114	1	Pressure arm bracket locking eccentric
382		2	$\frac{5}{16}$ " whit x $\frac{3}{4}$ " long socket head grubscREW	396		2	$\frac{1}{4}$ " x $1\frac{1}{2}$ " long groverlok spring dowel
383	B-1033/57	2	Top pressure bracket	397		2	$\frac{1}{4}$ " whit x $\frac{3}{4}$ " long socket head grubscREW
384	A-1033/94	2	Pressure adjusting nut	398		6	No. 8 countersunk head woodscREW
385		4	$\frac{3}{8}$ " whit locknut	398		6	$\frac{3}{4}$ " long
386	B-S-1-B	2	$\frac{3}{8}$ " whit ball lever screw	399	A-1033/200	2	Pivot pin for top pressure pad
387		2	$\frac{5}{16}$ " dia x 1" long brass bot	400		2	Wood pressure pad
388		2	$\frac{5}{16}$ " whit x $\frac{1}{2}$ " long socket head grubscREW	401	B-1033/89	2	Top pressure pad for side heads
389	A-1033/88	2	Top pressure slide bar plug for side heads	402		2	$\frac{3}{8}$ " whit x 1" long countersunk head screw
390		1	$\frac{3}{8}$ " whit x 1" long dogpoint socket head grubscREW	403	C-1033/49	1	Pressure arm bracket
391		1	$1\frac{1}{4}$ " dia plastic ball, $\frac{3}{8}$ " whit	404	A-1033/119	1	Pressure arm bracket key
392	A-1033/195	2	Top pressure spring	405	A-1033/118	1	Pressure arm bracket clamp
393	A-1002/90A	1	Handle for locking eccentric	406	A-1033/116	1	Pressure arm bracket eccentric



Ref. No	Part No.	No. Off	Description
410	B-1033/150	1	Bottom head pressure support plate
411		4	$\frac{3}{4}$ " whit nut
412		1	$\frac{3}{4}$ " whit x 1" long square head bolt
413	A-1033/86	1	Pivot bush for bottom head pressure
414	A-1033/117	2	Bottom head pressure adjusting screw
415	B-1033/153	1	Bottom head pressure bracket
416	A-1033/85	2	Pivot pin for bottom head pressures

NOTE :-

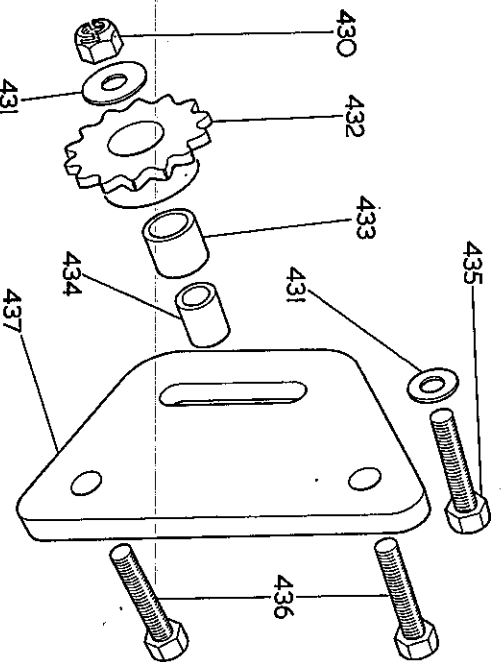
When ordering replacement parts quote part no. and serial number of the machine.

Ref. No.	Part No.	No. Off	Description
417		2	$\frac{1}{2}$ " whit x 1" long hexagon head bolt
418	A-1033/256	2	Spring for pressure over bottom head
419	B-1033/62	2	Top pressure arm
420	A-1033/91	2	Bottom head pressure rollers
421		2	$\frac{3}{4}$ " $\frac{1}{4}$ " x 1" o/d x $\frac{3}{4}$ " long oilite bush
422	A-1033/90	2	Pin for bottom head pressure rollers
423	B-1033/151	1	Bottom head pressure back plate

NOTE :-

When ordering replacement parts quote part no. and serial number of the machine.

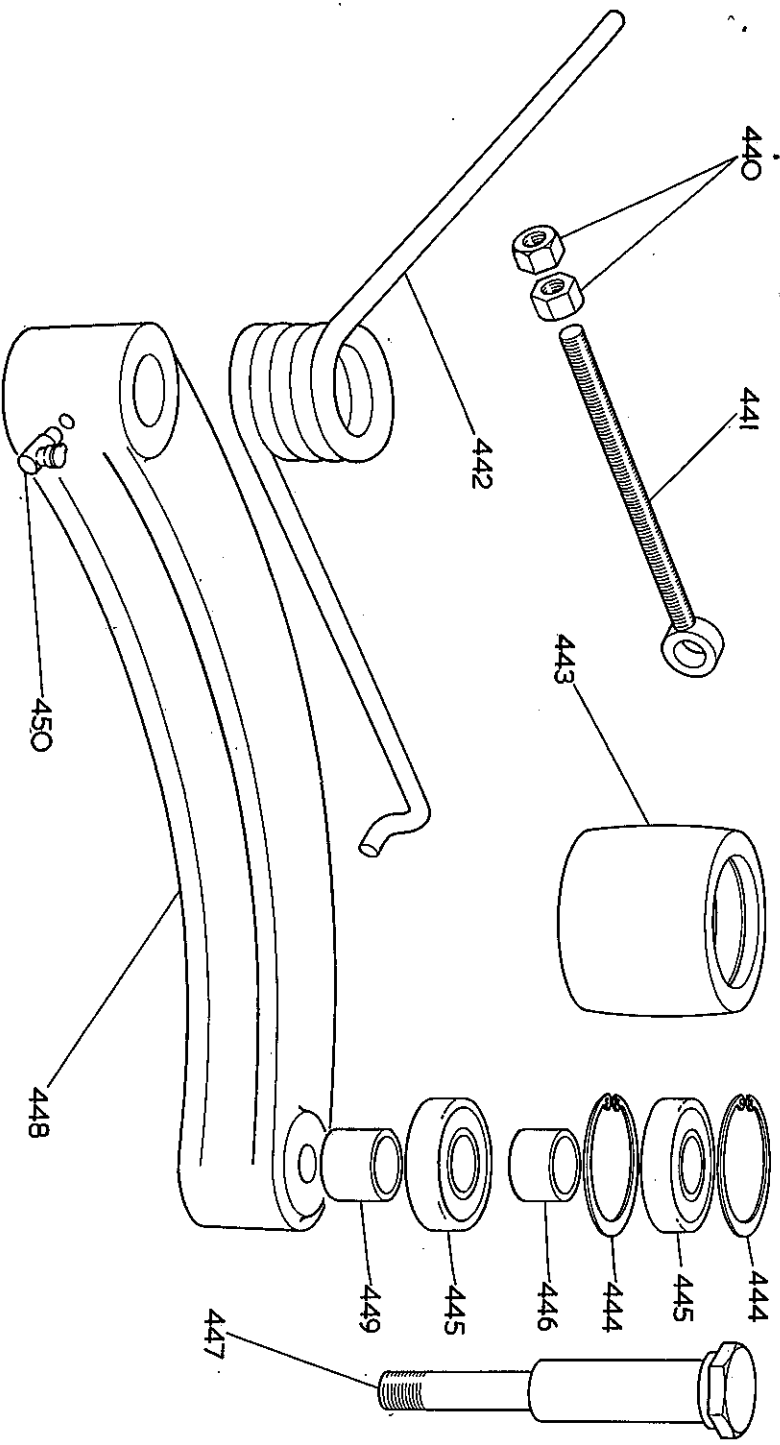
JOCKEY SPROCKET ASSEMBLY



Ref. No.	Part No.	No. Off	Description
430		1	$\frac{3}{8}$ " whit aerotight nut
431		2	Jockey sprocket
432	A-1033/233	1	$\frac{5}{8}$ " $\frac{1}{4}$ " x $\frac{7}{8}$ " o/d x 1.1/8" long oilite bush
433		1	Jockey sprocket bush
434	A-1033/212	1	$\frac{3}{8}$ " whit x 2" long hexagon head bolt
435		2	$\frac{3}{8}$ " whit x $1\frac{1}{4}$ " long hexagon head bolt
436		1	Jockey sprocket holder
437	B-1033/208	1	Jockey sprocket holder

NOTE :-

When ordering replacement parts quote part no. and serial number of the machine.



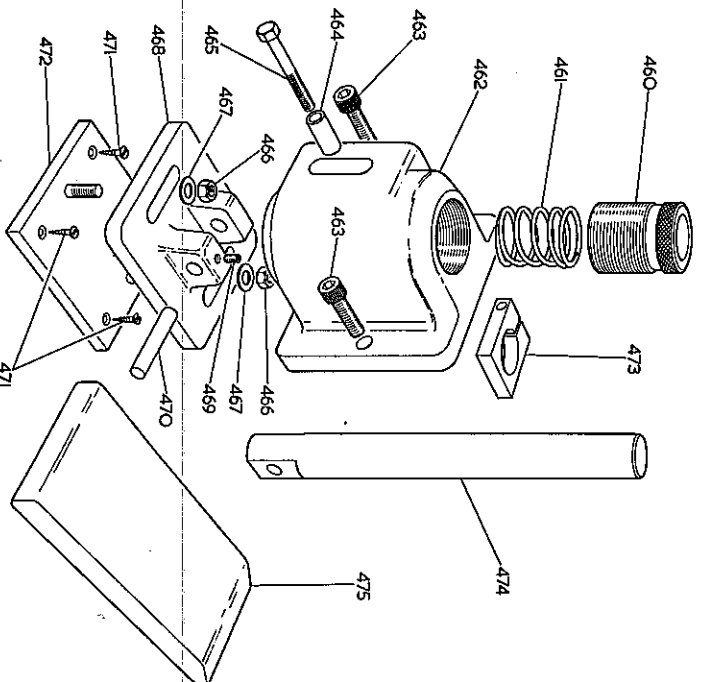
Ref. No	Part No.	No. Off	Description
440	A-1033/111	2	3/8" whit nut
441	B-1033/288	1	Belt tension spring adjusting screw
442	B-1033/78	1	Spring for side heads belt tension
443	5000-206	1	Jockey pulley
444	DN 205	2	52mm internal circlip
445		2	Fischer "sealed for life" bearing

Ref. No	Part No.	No. Off	Description
446	A-1033/177	1	Jockey pulley distance piece (3/4" long)
447	B-1033/154	1	Side head jockey pulley bearing pin
448	C-1033/46	1	Side head jockey pulley arm
449	A-1033/177	1	Jockey pulley distance piece (1.3/16" long)
450	Oilers L251F	1	Angled Oiler

NOTE :-

When ordering replacement parts quote part no. and serial number of the machine.

SIDE HEAD JOCKEY ARM ASSEMBLY

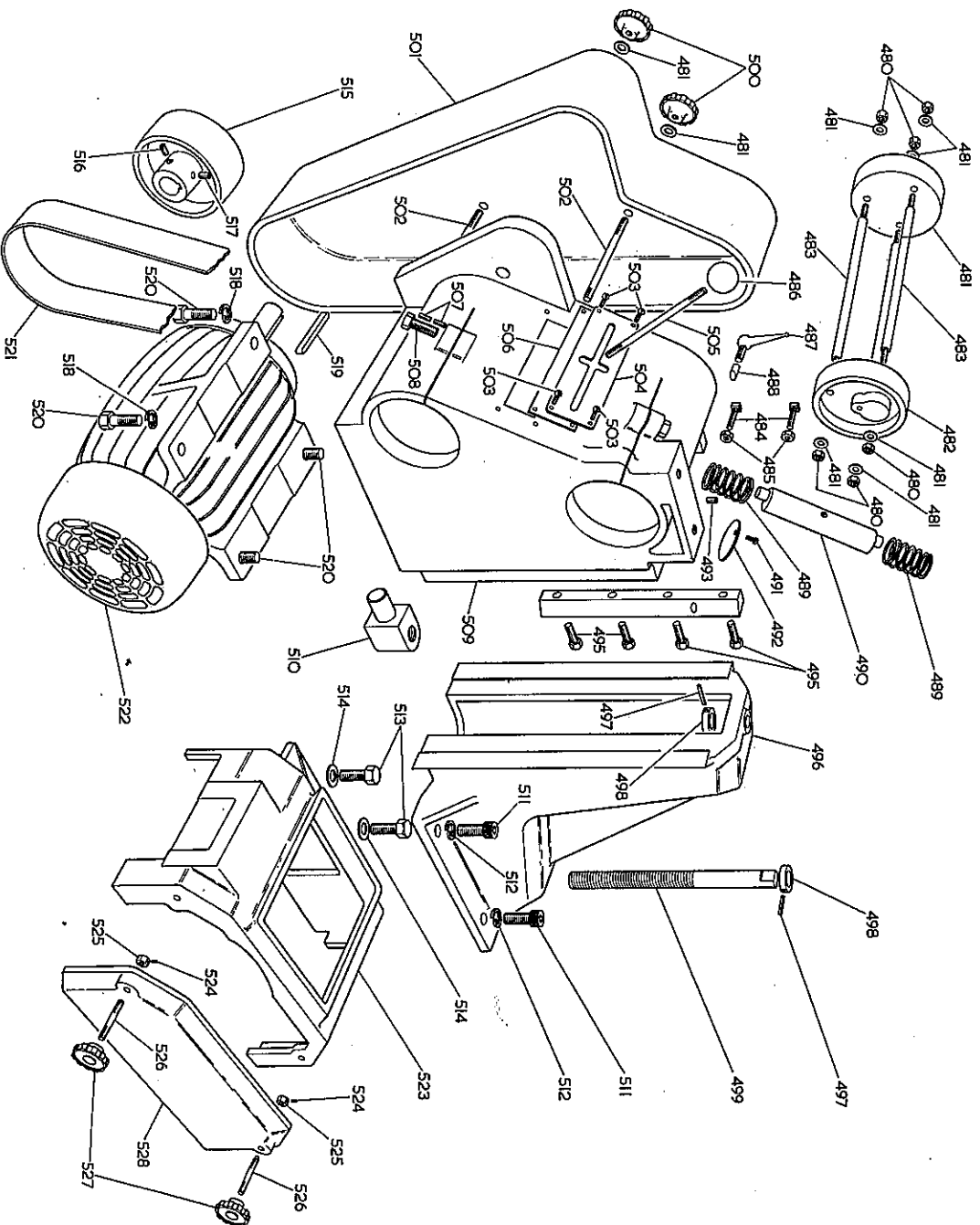


Ref. No	Part No.	No. Off	Description
460	A-1033/94	1	Pressure adjusting nut
461	A-1033/195	1	Top pressure spring
462	C-1033/131	1	Top pressure bracket for extra head
463		2	3/8" whit x 1" long socket head allen screw
464	A-1033/201	1	Front pressure locking distance piece
465		1	3/8" whit x 2 1/2" long hexagon head bolt
466		2	3/8" whit nut
467		2	3/8" whit washer
468	B-1033/71	1	Top head pressure pad
469		1	1/4" whit x 1/4" long allen head grub screw
470	A-1033/200	1	Pivot pin for top head pressure
471		4	3/4" No. 8 wood screw
472	B-1033/190	1	Adjusting plate for pressure pad
473	A-1033/84	1	Locking collar for pressure pad
474	A-1033/140	1	Back pressure rod
475		1	Wood pressure pad

NOTE :-

When ordering replacement parts quote part no. and serial number of the machine.

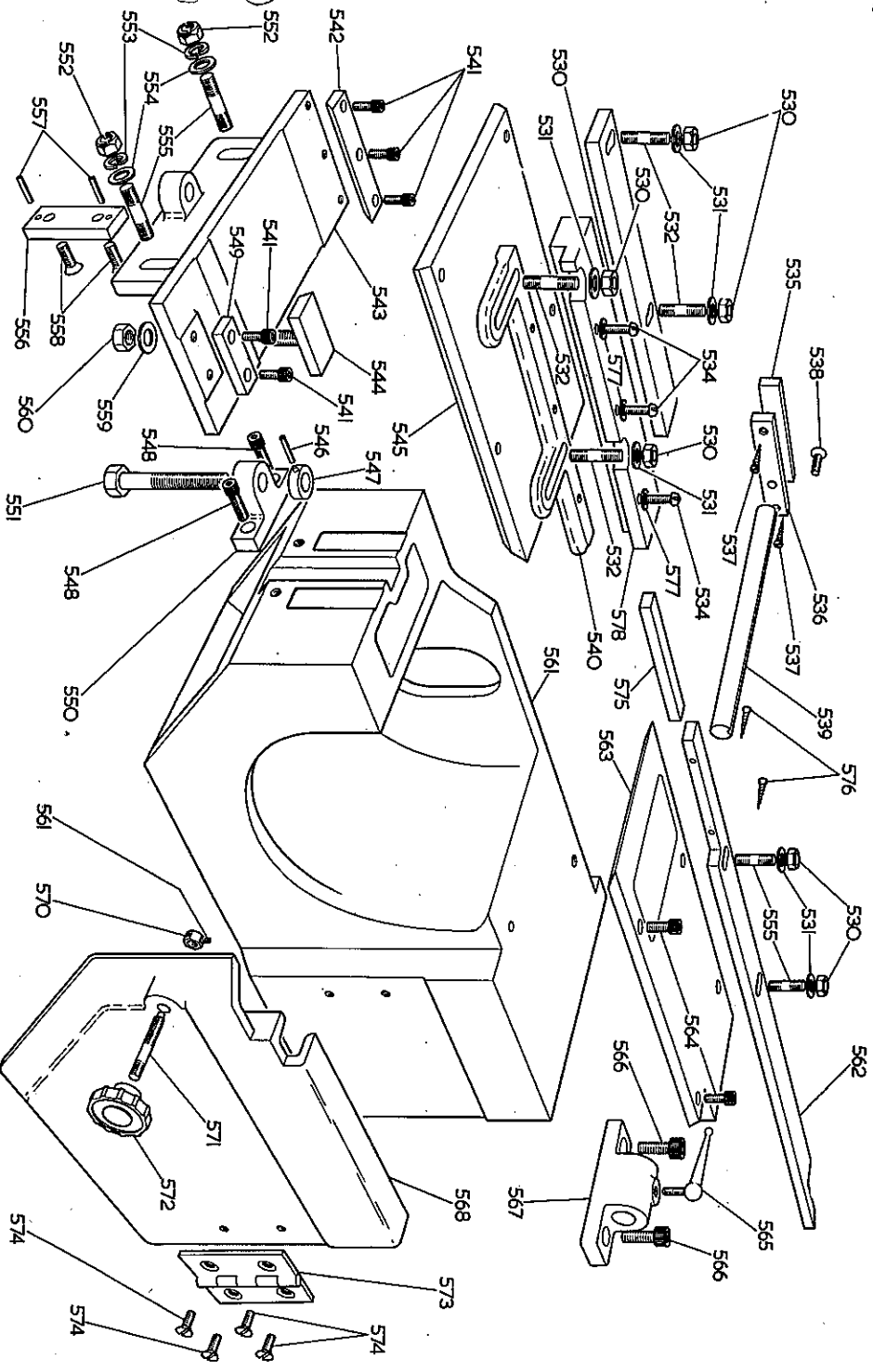
PRESSURE AFTER EXTRA HEAD ASSEMBLY



EXTRA HEAD SLIDE ASSEMBLY

NOTE :-
When ordering replacement parts quote
part no. and serial number of the machine.

Ref. No	Part No.	No. Off	Description	Ref. No	Part No.	No. Off	Description
480		6	3/8" whit nut	509	E-1033 /120	1	Housing bracket for fifth head
481		8	3/8" whit washer	510	A-1033/129	1	R & F nut for extra head
482	B-1033 /128	2	Jockey pulley holder	511		4	1/2" whit x 1 1/2" long socket head cap screw
483	A-1033 /139	3	Jockey pulley holder the bars	512		4	1/2" spring washer
484		4	1/4" whit x 1 1/4" long square head bolt	513		2	1/2" whit x 1 1/4" long hexagon head bolt
485		4	1/4" whit nut	514		2	5/16" washer
486		1	1 1/4" dia plastic ball 3/8" whit bore	515	B-1033 /16	1	50 cycle motor pulley
487		1	3/8" whit ball lever screw	516	B-1033 /265	1	60 cycle motor pulley
488		1	5/16" dia x 1 1/4" long brass bot	517		1	1/8" gas x 1/2" long socket head grubscREW
489	A-1033 /142	2	Adjustment spring	518		1	1/8" gas x 3/8" long socket head grubscREW
490	A-1033 /137	1	Lateral adjustment eccentric pin	519		4	3/8" spring washer
491		1	3/16" whit x 3/8" long round head screw	520		1	5/16" wide x 2 3/4" long leather key
492	B-1033 /287	1	Cover plate for extra head adjustment	521		4	3/8" whit x 1 1/2" long hexagon head bolt
493		1	3/8" whit x 5/8" long socket head grubscREW	522		1	62" long x 2" wide meteor flat belt double faced type S (50cycle)
494	A-1033 /136	1	Gib strip for extra head	523		1	60 1/4" long x 2" wide meteor flat belt double faced, type S (60cycle)
495		4	3/8" whit x 1" long hexagon head bolt	524		1	Brook motor, Frame D184, 5HP, T. E. F. C., 3000rpm foot mounted, 3phase, 50cycles
496	D-1033 /121	1	Slide bracket for extra head	525		1	Brook 'Compact' motor, Frame LS184T, 5HP, T. E. F. C. 3, 600rpm, foot-mounted, 3phase, 60cycles
497		2	3/16" x 1 1/4" long groverlock spring	526		2	Cover for extra head
498	A-1033 /260	2	Collar for extra head R&F screw	527		2	3/16" whit x 3/16" long socket head grubscREW
499	A-1033 /135	1	R & F screw for extra head	528		2	3/8" whit nut with 3/16" tapped hole
500		2	1 3/4" dia plastic handwheel 3/8" whit	529		2	3/8" whit x 2 1/4" long stud with spigot
501	D-1033 /126	1	Belt guard for extra head	530		2	1 3/4" dia plastic handwheel
502	A-1033 /269	2	Belt guard stud	531		1	Door for fifth head cover.
503		4	3/16" whit x 3/4" long round-head screw				
504	C-SK-528/Q	1	Instruction plate for extra head				
505	A-1031 /103	1	Lateral adjusting handle for extra head				
506	A-1033 /241	1	Extra head cover plate				
507		4	1" whit x 3/8" long socket head grubscREW				
508		2	1/2" whit x 2" long hexagon head bolt				

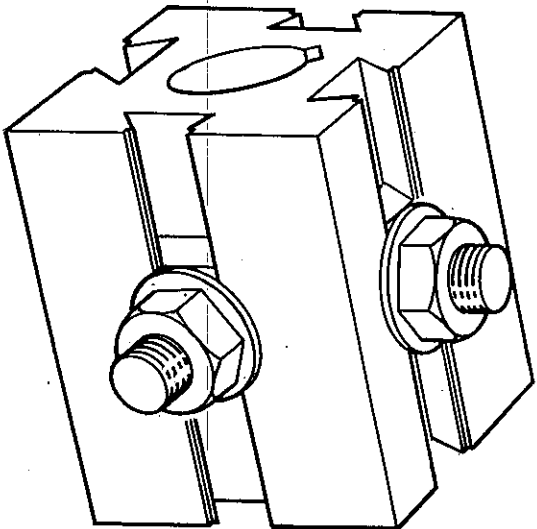


EXTRA HEAD TABLE

ASSEMBLY

Note:-
When ordering replacement parts quote part no. and serial number of the machine.

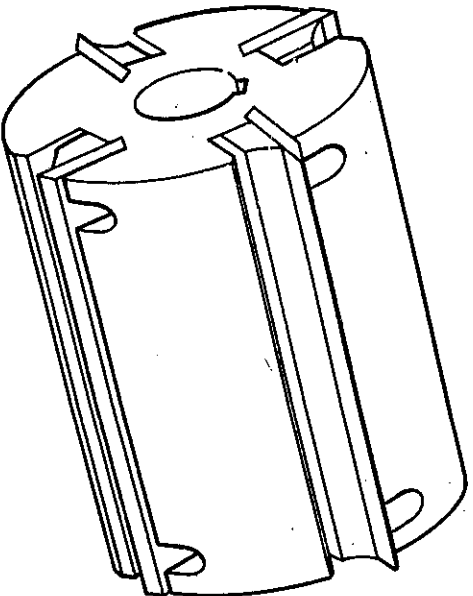
Ref. No.	Part No.	No. Off	Description	Ref. No.	Part No.	No. Off	Description
530		6	3/8" whit nut	556	A-1033/138	1	Key for adjustable table
531		6	3/8" B. S. F. washer	557		2	3/16" x 3/4" long groverlock spring dowel
532		4	3/8" whit x 1.3/8" long stud.	558		2	1/2" whit x 3/4" long socket head dowel
533	B-1033/144	1	Rear fence	559		1	1/2" washer
534		3	1/4" whit x 1" long round head screw	560	D-1033/122	1	1/2" whit nut
535		1	Wood pad	561	B-1033/134	1	Fixed table for extra head
536		1	Extra head side pressure	562	B-1033/134	1	Front fence
537	A-1033/213	1	Wood screw.	563	B-1033/132	1	Bed plate
538		2	5/16" whit x 3/4" long socket head countersunk screw.	564		2	5/16" whit x 1/2" long socket head capscrew
539	B-1033/292	1	Arm for front pressure	565		1	3/8" whit ball lever screw
540	B-1033/173	1	Rear extension table guide casting	566		1	3/8" whit x 3/4" long socket head capscrew
541		5	1/4" whit x 5/8" long socket head capscrew	567	B-1033/209	1	Extra head side guide bracket
542		1	See strip for adjustable table	568	B-1033/127	1	Door for bottom extra head
543	A-1033/266	1	Adjustable table for extra head	569		1	3/16" whit x 3/16" long socket head grubscrew
544	C-1033/123	1	Adjustable table bedplate clamp	570		1	3/8" whit nut with 3/16" tapped hole
545	A-1033/247	1	Bedplate for adjustable table	571		1	3/8" whit x 2" long stud with spigot
546	B-1033/133	1	3/16" x 1" long groverlock spring dowel	572		1	1 1/4" dia plastic handwheel(3/8" whit)
547		1	Adjustable table R & F screw	573		1	3" steel hinge
548	A-1033/248	2	5/16" whit x 1" long socket head capscrew	574		4	1" whit x 3/4" long countersunk head screw
549		1	Stop strip for adjustable table	575		1	Wood insert
550	B-1033/245	1	Adjustable table R & F bracket	576		2	1 1/2" long No. 8 countersunk head wood screw
551	A-1033/249	1	Adjustable table R & F screw	577		3	1/4" washer
552		2	3/8" whit areotight nut	578		1	Wood facing for front fence
553		2	3/8" spring washer				
554		2	3/8" washer				
555		2	3/8" whit x 1 1/4" long stud				

EXTRA EQUIPMENT**SQUARE CUTTERBLOCKS****FOR TOP & BOTTOM HEADS**

4 $\frac{3}{4}$ " (120mm) long x 3" (76mm) square cutterblock 1 $\frac{1}{4}$ " (31.75mm) bore 1033/107 with bolts, nut and washers

FOR SIDE HEADS

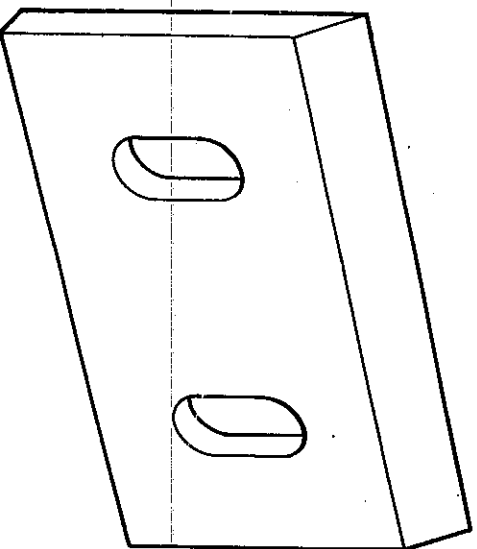
3 $\frac{1}{2}$ " (82mm) long x 3" (76mm) square cutterblock 1 $\frac{1}{4}$ " (31.75mm) bore 1033/210 with bolts, nuts and washers

**CIRCULAR CUTTERBLOCKS****FOR TOP AND BOTTOM HEADS**

Four knife circular cutterblock 4 $\frac{3}{4}$ " (120mm) long x 5" (127mm) dia cutting circle C-1033/214

FOR SIDE HEADS

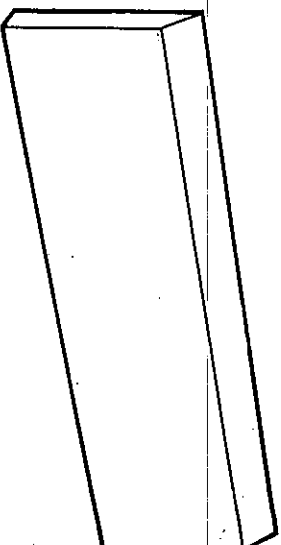
Four knife circular cutterblock 3 $\frac{1}{4}$ " (82mm) x 5" (127mm) dia cutting circle C-1033/215

**CUTTERS FOR SQUARE CUTTERBLOCKS****FOR TOP AND BOTTOM HEADS**

1 pair 4 $\frac{3}{4}$ " (120mm) long x 3 $\frac{1}{2}$ " (89mm) x 3/8" (9.5mm) HSS straight cutters BS.165

FOR SIDE HEADS

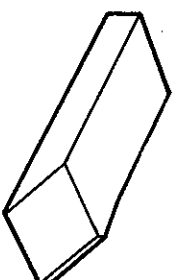
1 pair 3 $\frac{1}{4}$ " (82mm) x 3 $\frac{1}{2}$ " (89mm) x 3/8" (9.5mm) HSS straight cutters BS.166

**CUTTERS FOR CIRCULAR CUTTERBLOCK****FOR TOP AND BOTTOM HEADS**

1 set straight cutters for circular cutterblock 4 $\frac{3}{4}$ " (120mm) long A-S-164/4 $\frac{3}{4}$ "

FOR SIDE HEADS

1 set straight cutters for circular cutterblock 3 $\frac{1}{4}$ " (82mm) long A-S-164/3 $\frac{1}{4}$ "

**T.C.T. CUTTERS FOR REBATE BLOCK ON BOTTOM HEAD**

1 pair Tungsten carbide tipped cutters 1033/222

**SLITTING SAW FOR FIFTH HEAD**

1 - 9" dia alloy steel slitting saw
1 pair saw flanges for above
1 set spacing collars for above