

Wadkin Limited

OPERATING & MAINTENANCE

INSTRUCTIONS

9" & 8" Planing & Moulding Machine, Type F.D.

Instruction Book No 1157

(inc. Information Sheets)

Wadkin

OPERATING AND MAINTENANCE INSTRUCTIONS

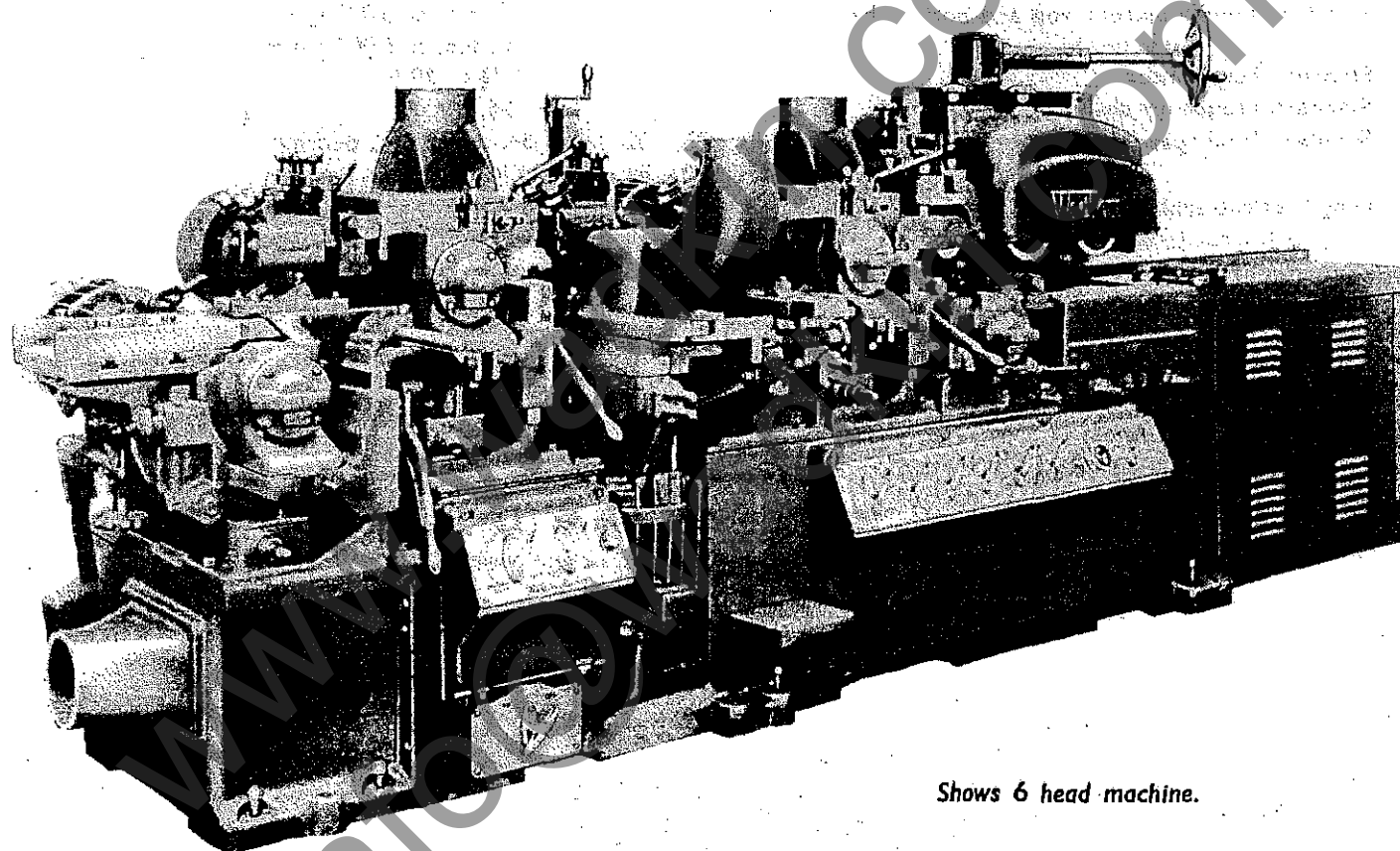
9' and 8' Planing and Moulding Machine, Type F.D.

INSTRUCTION BOOK No. 1157

MODIFICATIONS ARE MADE TO THESE BOOKS FROM TIME TO TIME
AND IT IS IMPORTANT THEREFORE THAT ONLY THE BOOK SENT
WITH THE MACHINE SHOULD BE USED AS A WORKING MANUAL

PLANING AND MOULDING MACHINE, F.D.

With 5 or 6 heads.



Shows 6 head machine.

PRINCIPAL DIMENSIONS AND CAPACITIES

8" machine—Maximum size of timber admitted to feed works	8 $\frac{1}{2}$ " x 4 $\frac{1}{2}$ "	} Alternatives can be supplied to special order
9" machine—Maximum size of timber admitted to feed works	9 $\frac{1}{2}$ " x 4 $\frac{1}{2}$ "	
Maximum size of finished work	9" wide x 4" thick or 8" x 4"	
Standard spindle motors, top and bottom heads	10 h.p. at 6,000 r.p.m.	
side heads	10 h.p. at 6,000 r.p.m.	
Standard Feed motor	7 $\frac{1}{2}$ or 10 h.p.	
Standard Frequency changer	25 K.V.A.	
Standard Feed speeds	18, 25, 32, 45, 54, and 75 ft. per min.	
	36, 50, 64, 90, 108, and 150 ft. per min.	
Length of cutterblocks, top and bottom	9 $\frac{1}{2}$ " for 9" FD., 8 $\frac{1}{2}$ " for 8" FD.	
side	4 $\frac{1}{2}$ "	
Minimum cutting circle, all heads	6 $\frac{1}{2}$ " cutting dia.	
Maximum cutting circle, first bottom head	7 $\frac{1}{2}$ "	
top heads	10 $\frac{1}{2}$ "	
side heads	8 $\frac{1}{2}$ "	
optional second bottom head	10 $\frac{1}{2}$ "	
End adjustment, all heads	3"	
Side heads arranged to cant 45° inwards, 15° outwards.			
Diameter of bottom feed rolls	8"	
Diameter of top feed rolls	8 $\frac{3}{8}$ "	

Diamond or Saw tooth feed rolls can be supplied for feeding hard or wet timbers.

DETAILS INCLUDED WITH THE MACHINE

- All motors and control gear and all wiring.
- Frequency changer and wiring.
- Main isolating switch.
- One square cutterblock to each head complete with collets (self centring sleeves), cutter bolts, nuts and cutters.
- Exhaust hoods to each head.
- Feed-in table and covers.

INSTALLATION

The machine is despatched from the Works with all bright surfaces greased to prevent rusting. This must be removed by applying a cloth damped with paraffin or turpentine.

FOUNDATIONS

$\frac{3}{4}$ " diameter foundation bolts should be used to bolt the machine down to the floor. If the mill floor consists of 6" solid concrete, no special foundation is necessary. Rag type holding down bolts may be used, and working from the foundation plan 6" to 8" square holes should be cut in the concrete for these bolts. After the machine has been carefully levelled and the "in-feed" table leg, it should be grouted in position with liquid cement. (No pit is required under machine.)

IMPORTANT : Four lifting brackets are fitted to the machine. If these are removed, see that the holes are plugged to prevent entrance of dust to internal mechanism.

WIRING

See end of book for details and wiring diagrams.

DUST EXHAUST SYSTEM

We have developed with Messrs D.C.E. Ltd., of Leicester, a special collector unit for this machine which represents a big advance on the usual practice of coupling each head independently into the main. This unit comprises a sheet steel hollow column supporting all the overhead pipes to the top heads and side heads, and the rigid connections to the bottom blocks. The pipes are flexible to facilitate removal of the exhaust hoods.

FEED WORKS

A feed motor driven by vee belts through a 6 speed gear box provides the drive for the feed works. The feed rollers above the bed are carried in independent swings, these being mounted on a vertical slide. The drive to these rollers is taken through a chain from the gearbox. The final drive to each roller being through spur gears.

The whole top roller swing assembly is mounted on a vertical vee slide which slides in the main feed works housing. The chain is automatically tensioned for all roller positions by means of an idler sprocket mounted inside the feed works housing, and the whole drive runs in an oil bath. Provision is made for retensioning the chain, the adjustment being provided by a tightener sprocket.

The spiral gearbox mounted at the top of the housing provides the drive for raising and lowering the feed roller slide by turning the handwheel. This allows the top roller assembly to be adjusted for various thicknesses of timber. The swings have independent adjustment by turning the handwheels. This independent adjustment is provided by compression springs and allows for a variation in timber thickness up to a maximum of $\frac{3}{4}$ " without altering the main roller setting.

The "feeding-in" table and feed works housings are $\frac{1}{16}$ " below the level of the main machine table. The bottom feed rollers are driven by spur gears from the gear shaft, the gears running in oil. Rollers are mounted in separate ball bearing housings. The rollers can be adjusted on two wedges.

A timber guard is fitted which can be adjusted to any desired thickness of timber. A scale is fitted on the stationary feed works housing, with a pointer mounted on the top roller cover to give direct reading for the roller setting. A cavity under the feed works housing, terminating in a chute, discharges chips and dust which would otherwise clog the feed rollers.

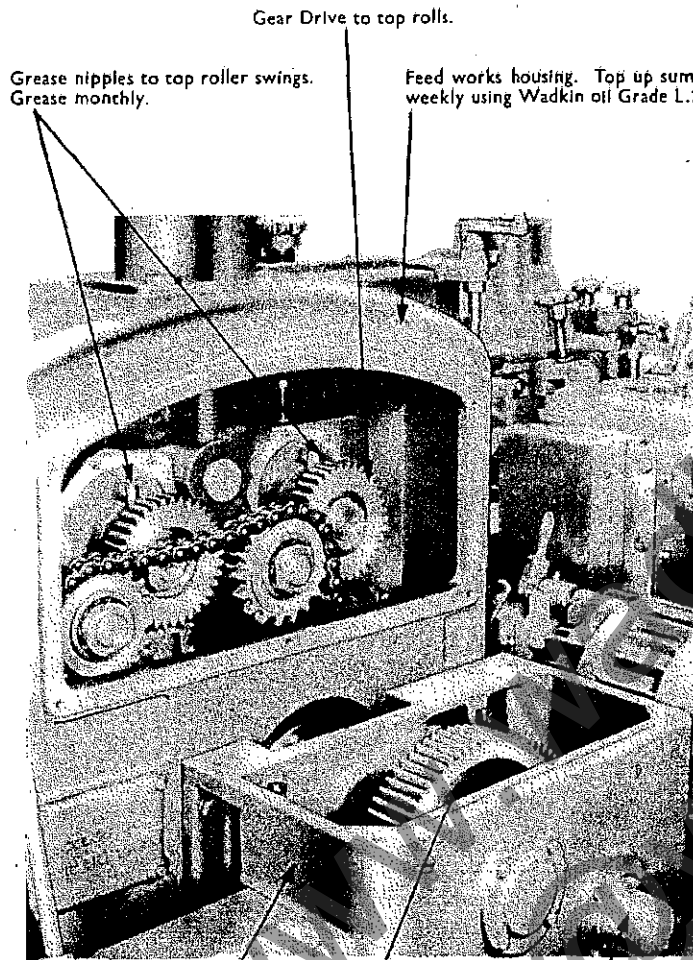
To adjust the tension on the feed drive vee ropes, the nuts on the tensioning screw should be slackened off, readjusted and locked up in the new position. Should any replacement vee rope belts be required a complete set should be fitted, otherwise the pull will not be equal on each rope.

The frequency changer drive is adjusted in a similar manner to the feed motor, the tensioning screws are shown at Fig. 1. A complete set of vee ropes should be fitted as replacements. (4 - No. 60B.)

Feed works are driven by two step cone pulleys. The 6 speed gear box on first step on pulley gives a range from 18 to 75 feet. By changing the vee ropes over to the second step a range from 36 to 150 feet is obtained.

Pneumatic feed works can be supplied to special order.

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Gear Drive to top rolls.

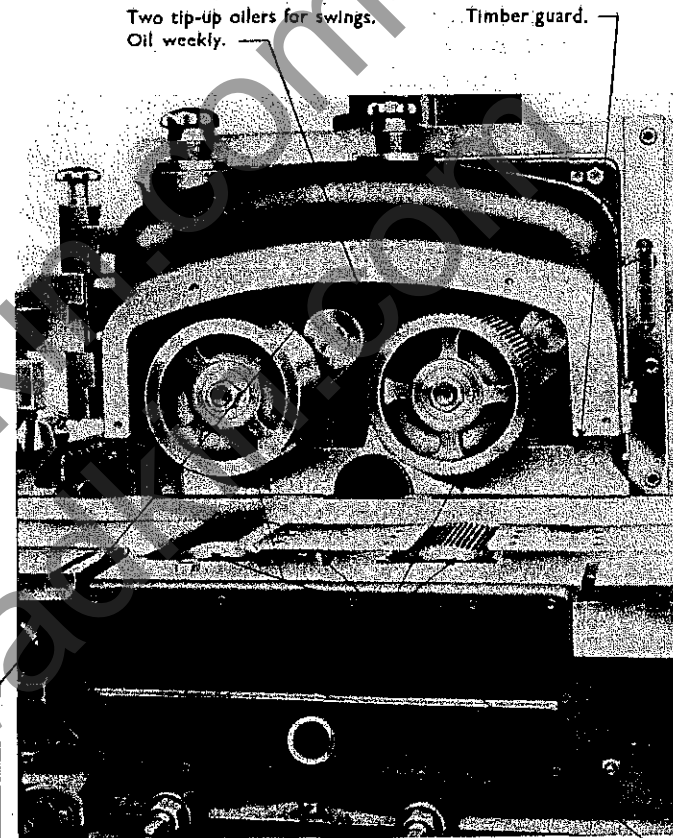
Grease nipples to top roller swings.
Grease monthly.

Feed works housing. Top up sump
weekly using Wadkin oil Grade L.2.

6 speed gear box.

Worm box to be topped up weekly
using Wadkin oil Grade L.2.

Remove cap for fitting hopper
feed driving sprocket.



Two tip-up oilers for swings.
Oil weekly.

Timber guard.

Adjustment to bottom feed roller.

5 grease nipples on bottom feed
roll housing. Grease weekly.

Two grease nipples on top swings.
Grease weekly.

TABLE BEFORE BOTTOM BLOCK

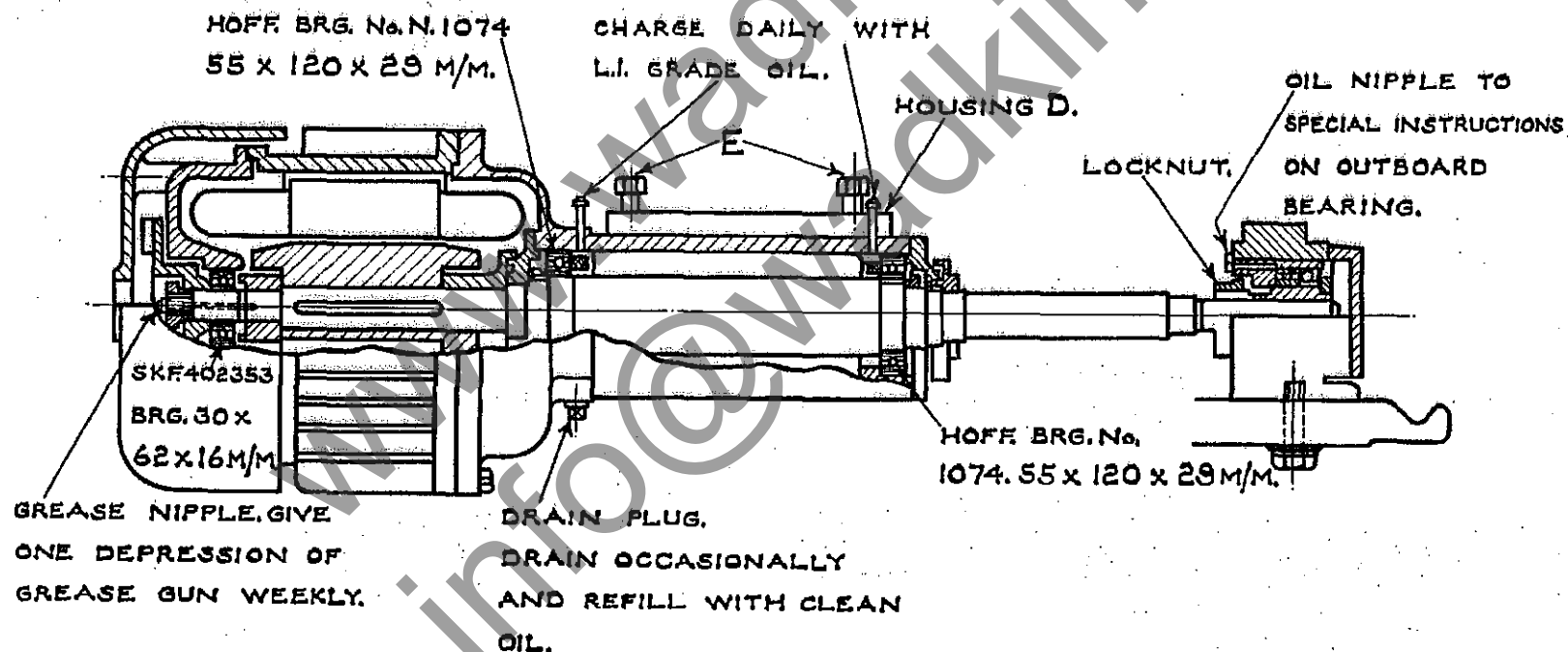
The table before bottom block shown in Fig. 2 is fitted with a renewable bed plate firmly clamped by wedge action. The plate is fitted with a peg underneath to prevent any movement towards the cutters. Vertical movement of table is obtained by slacking nut B and turning shaft A. The table can be adjusted between $\frac{1}{16}$ " above the main table level and $\frac{5}{16}$ " below. Always make sure when table has been set, to lock nut B again.

FIRST BOTTOM BLOCK

The spindle unit is mounted on a double vertical slide located on each side of the cutterblock. Rise and fall of the spindle unit is by two vertical screws operated by spiral gears in enclosed boxes and operated by shaft 'C.' Slacken nut 'Y' and raise or lower spindle unit. Relock after block has been set.

The spindle barrel is locked in housing 'D' on carriage by two split grip nuts 'E'; these nuts must be slacked off before using ratchet lever for cross adjustment to spindle. Nuts 'E' to be locked up again when final setting has been done to cutterblock. Maximum cutting circle, $7\frac{1}{2}$ ". Minimum cutting circle, $4\frac{1}{2}$ ".

Section through cutter spindle shown for all horizontal heads and should be studied for lubrication to bearings.



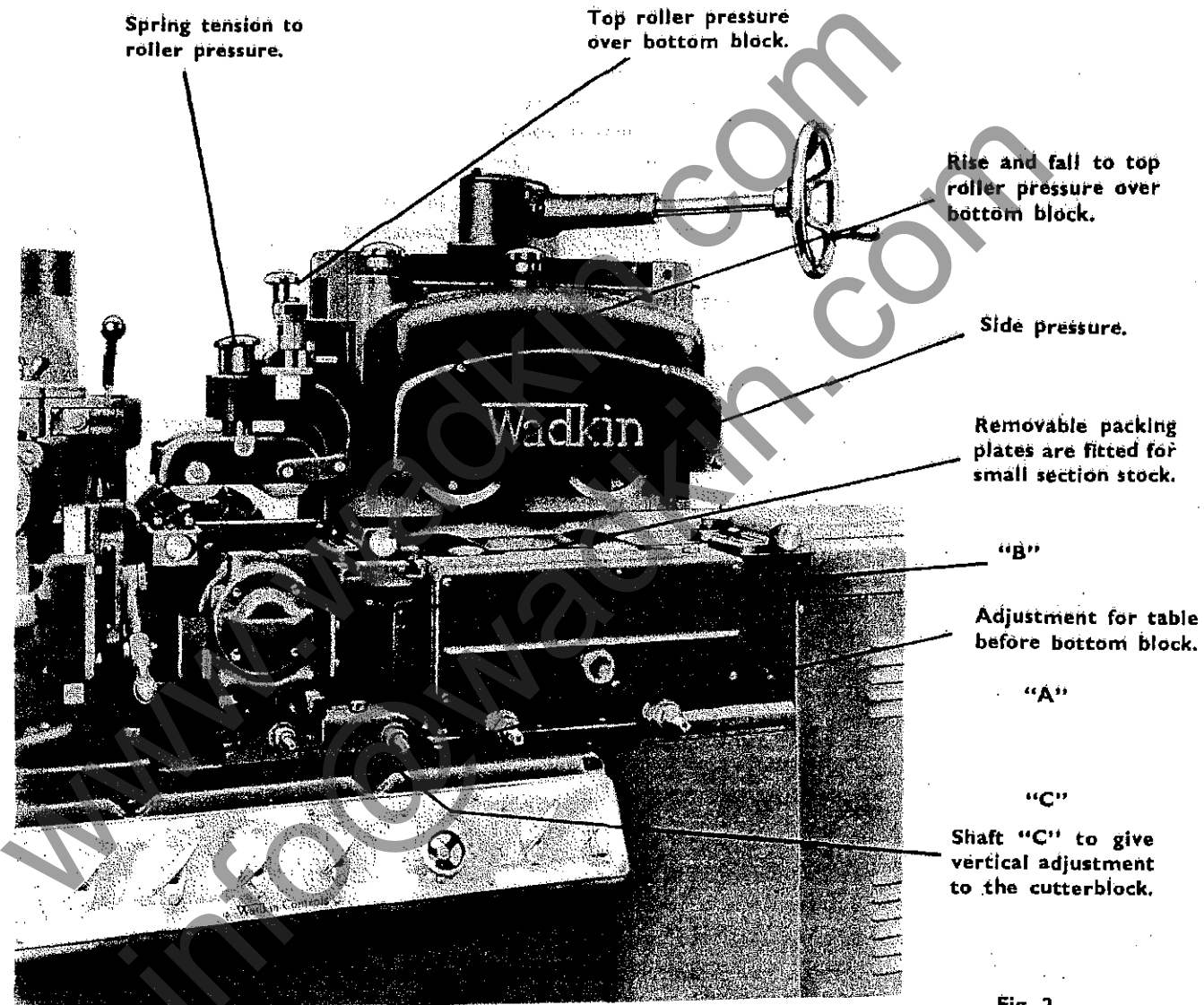


Fig. 2

TOP HEADS (1st and 2nd)

The spindle unit is mounted on a double vertical slide located and locked on each side of the cutterblock with locking levers A. Rise and fall of spindle unit is by two vertical screws operated by spiral gears in enclosed boxes, and operated by shafts B. Before adjusting height of spindle units push levers A down and then raise or lower spindle unit. Relock after block has been set.

The bed plates under top heads are renewable and are gripped in position with a wedge action. This plate has a white metal insert directly underneath the cutter track to avoid damage to cutters should the head be accidentally wound down too far into the table plate.

A ratchet lever C provides cross adjustment to the spindle.

Maximum cutter track on top heads is $10\frac{1}{2}$ " diameter and $6\frac{1}{2}$ " diameter minimum.

See page 22 showing method of mounting blocks.

A scale is fitted on the vertical stands with a pointer attached to carriage slide, giving direct reading for adjusting cutterheads.

Exhaust hoods are fitted to chipbreaker arms and are held by two pegs.

See page 10 showing top head chipbreaker.

SECOND BOTTOM HEAD

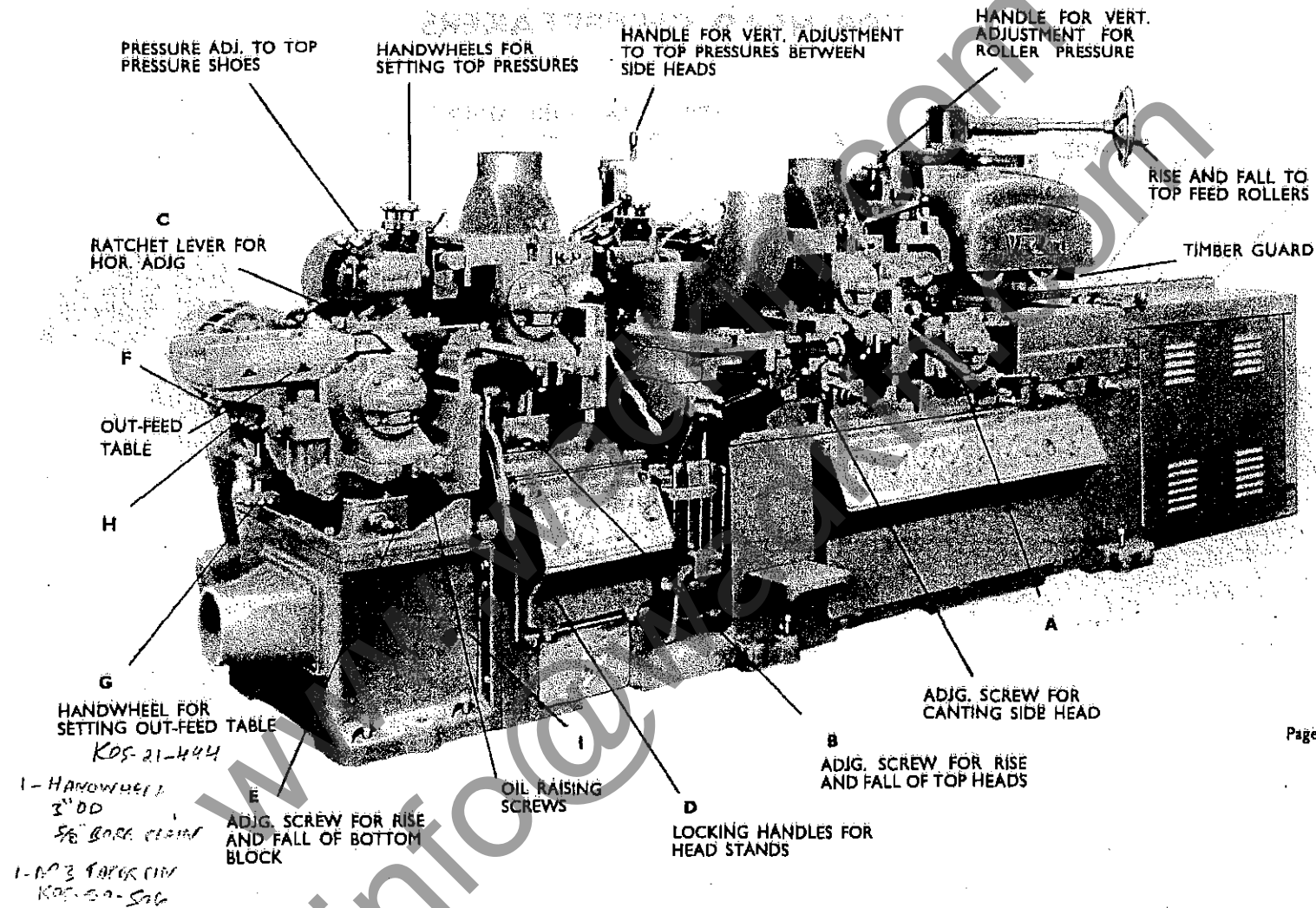
The spindle unit is mounted on a double vertical slide located and locked on each side of the cutterblock with a locking lever D. Rise and fall of spindle unit is by two vertical screws operated by spiral gears in enclosed boxes, and operated by shaft E. Before adjusting height of spindle unit push lever D down and then raise or lower spindle unit. Relock after block has been set.

To allow access to cutter spindle, the whole of the out-feed table unit swings away from the carriage slide. To do this, fluted handwheels F should be released and the eyebolts swung out of position, giving access to cutters. The table is counterbalanced.

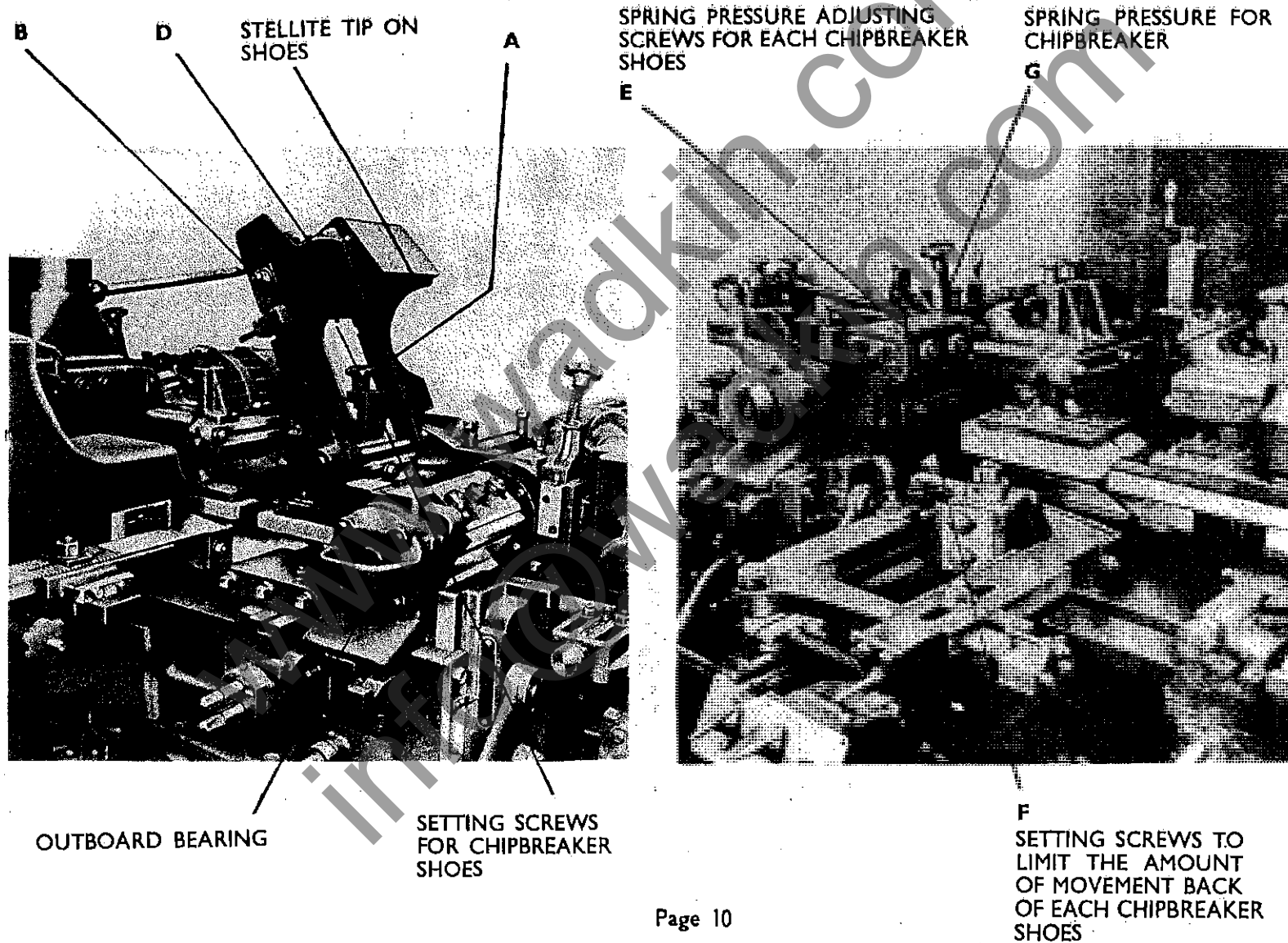
The table itself has two tee slots cut across for two short fences. Both fences are drilled to fit wood packings if required. The maximum cutting circle is $10\frac{1}{2}$ " diameter and minimum cutting circle is $6\frac{1}{2}$ " diameter.

Out-feed table can be adjusted vertically by handwheel G but nuts H must be slackened off before turning handwheel. Make sure these nuts are locked again after final setting. Chips are exhausted out of stand I through side.

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TOP HEAD CHIPBREAKERS



TOP HEAD CHIPBREAKERS

The chipbreaker unit is fitted with two independent shoes both pivoting at D.

The unit slides along supporting arms A and is locked in position with serrated washers and nuts B, each side of unit. Each shoe is fitted with a spring and can be adjusted with hexagon locknuts E.

Square head screws F are adjusted to limit the amount of movement back of each shoe.

Horizontal adjustment of chipbreaker unit accommodates cutting circles from 6½" to 10½". Pressure shoes are renewable to accommodate special moulds or bevelled stock.

Variation in stock is controlled by the whole of the chipbreaker unit swinging up against spring G.

The chipbreaker unit is carried off top head spindle housings.

JOINTERS

Horizontal and vertical jointer can be supplied to special order (Straight Jointer).

Profile jointers can be supplied for horizontal and vertical head.

See special Leaflet Section E for cutter equipment.

FENCE SIDE HEAD

The vertical fence side cutter spindle is shown at Fig. 7. The vertical spindle barrel is clamped in a circular housing forming a slide for a vertical adjustment. The barrel is clamped with nut B locking a split clamp. For vertical adjustment to block, slacken nut B and use ratchet lever to raise or lower block. When block is finally set, lock up nut B again.

CANTING FENCE SIDE HEAD

This head will cant 45° inwards and 15° outwards. To do this, slacken off the following nuts A and then turn shaft G to direction of cant required. Relock nuts A again when head has been set. Before using cross traverse shaft, turn shaft F to unlock.

Bed plate must be adjusted to suit diameter of blocks and reset to suit.

The maximum cutter track on this head is 8½" diameter with a minimum of 6½" diameter.

NEAR SIDE HEAD (FIG. 8)

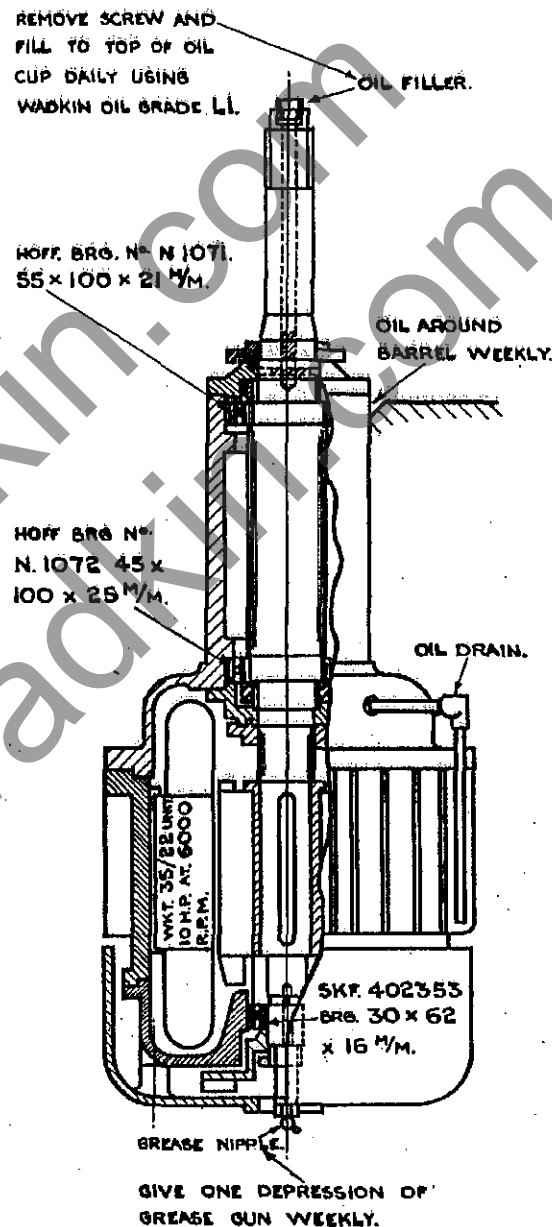
The vertical cutter spindle unit at the near side head is mounted and adjusted in a similar manner to the fence side head and will cant 45° inwards and 15° outwards.

Do not alter vertical adjustment without fitting a block on spindles.

The near side head is fitted with a swing away chip-breaker (see page 14).

The aluminium exhaust hoods are located in spindle barrels by a locating peg and locking screw.

When side heads need canting, special hoods have to be fitted and are supplied only to special order.

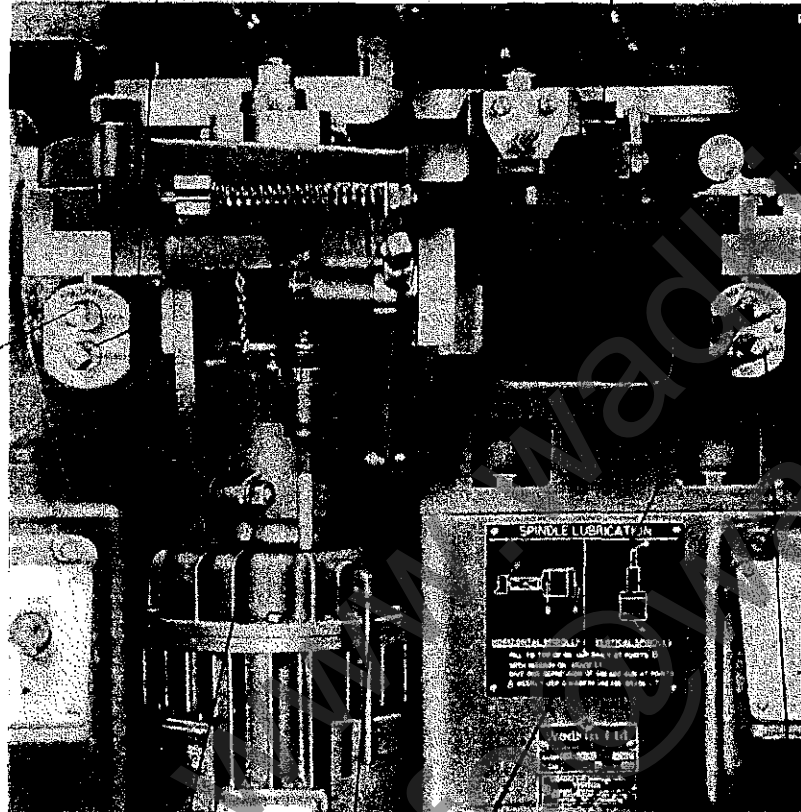


NEAR SIDE HEAD

SHAFT FOR CROSS ADJUSTMENT (FOR NEAR SIDE HEAD)

A

NUTS SECURING FENCE SIDE HEAD, BED PLATE TO CROSS SLIDE



A B

LOCK FOR NEAR SIDE HEAD SLIDE

SHAFT FOR CANTING SIDE HEAD

F LOCK FOR FENCE SIDE HEAD SLIDE

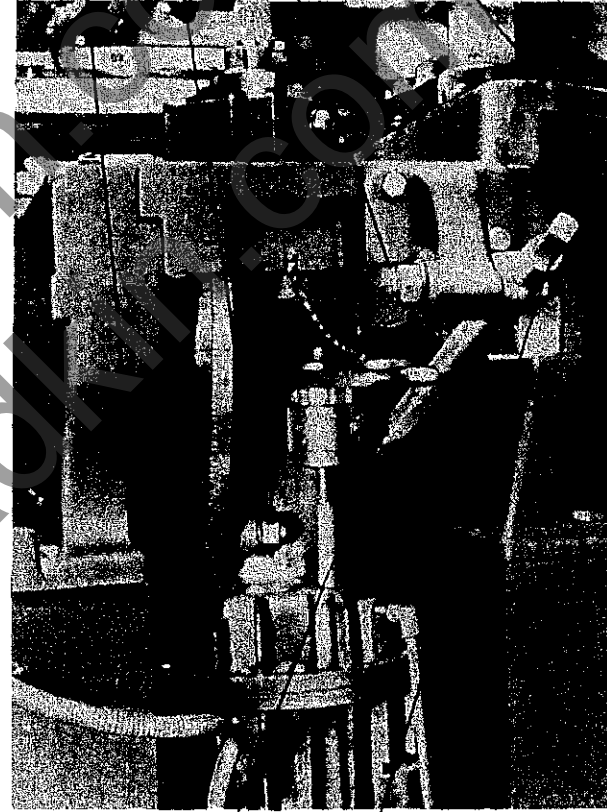
D SHAFT FOR CROSS ADJUSTMENT (FOR FENCE SIDE HEAD)

FIG. 7

FENCE SIDE HEAD

A B A

NUTS SECURING NEAR SIDE HEAD BED PLATE TO CROSS SLIDE

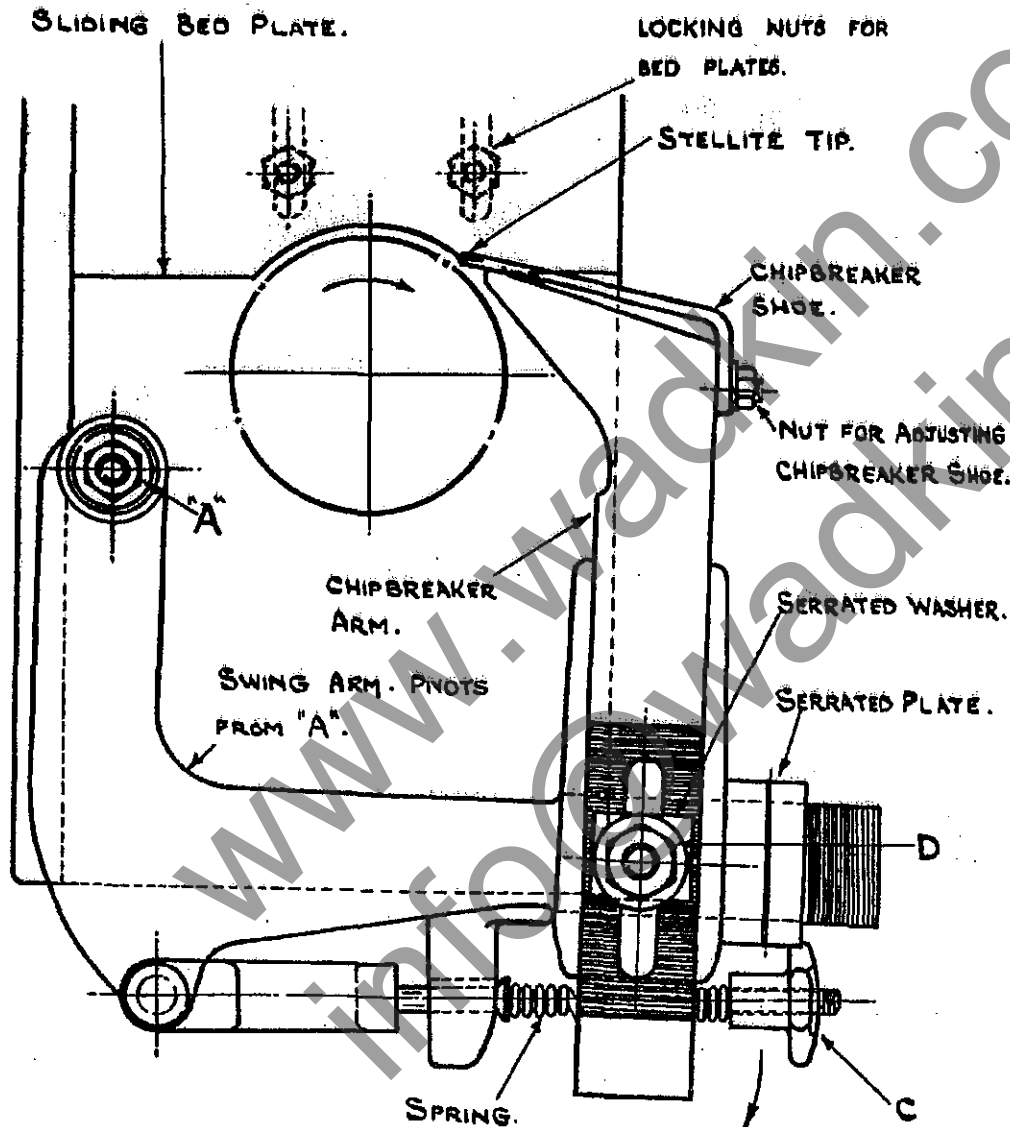


RATCHET LEVER FOR RISE AND FALL OF BLOCK

G SHAFT FOR CANTING FENCE SIDE HEAD

FIG. 8

FRONT SIDE HEAD CHIPBREAKER



The side head chipbreaker is carried from the side head slide and so moves with the near side head adjustment.

When chipbreaker shoe needs adjusting to suit cutters, slacken nut D. Lift serrated washer or plate clear of serrations on swing arm or chipbreaker arm.

When chipbreaker is set, make sure that serrated plate and washer engage in serrations on the chipbreaker arm and swing arm, then relock nut D.

The spring provides the tension. When chipbreaker kicks back under load, for quick release, it is only necessary to slacken handwheel C. The whole chipbreaker will swing clear in direction of arrow giving access to cutterblock.

FENCES

FENCE BEFORE FEED ROLLERS

This fence is fixed to the in-feed table.

FENCE OVER FEED ROLLER

This fence is fixed and is bolted to the rear bottom roll housing.

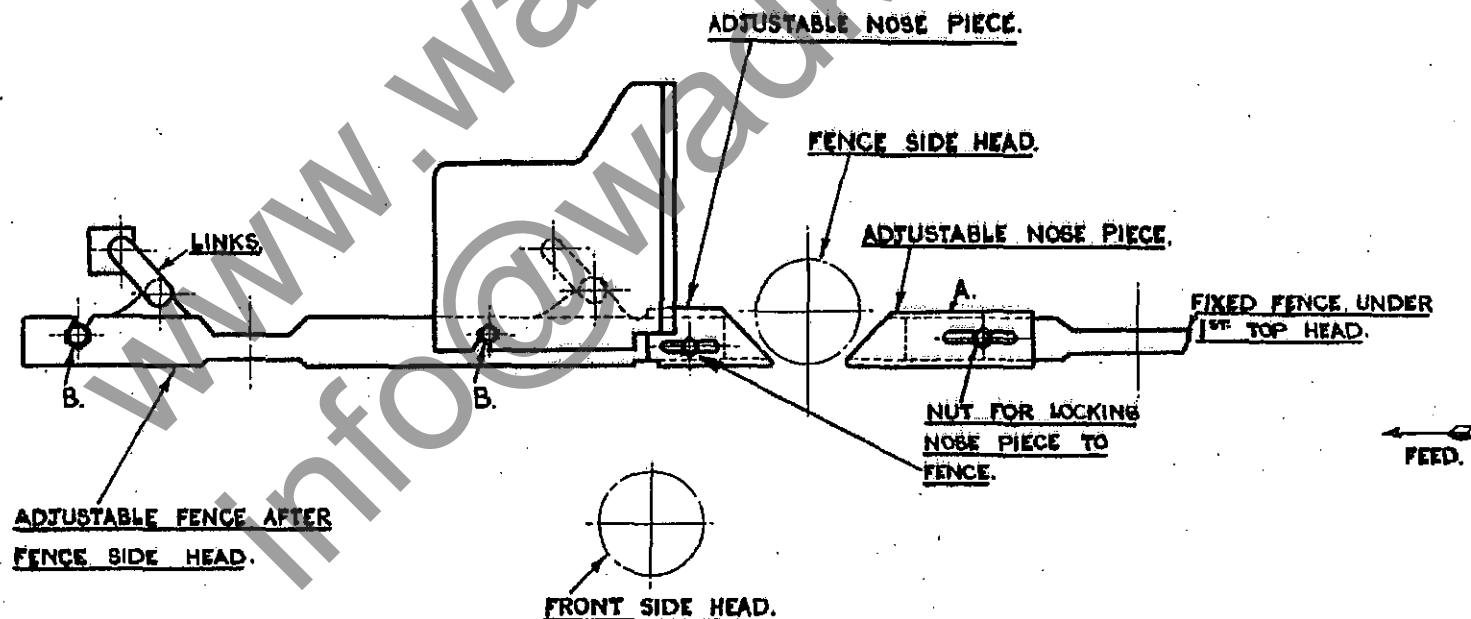
FENCE UNDER 1st TOP HEAD

This is fixed to the table and is fitted with an adjustable nose shoe A. The fence shoe is slotted to enable circular blocks from 6½" to 8½" diameter to be used.

FENCE AFTER NEAR FENCE HEAD

This fence is fitted with two links and can be moved in or out. The nuts B should be slackened and the whole fence moved to the desired position, and nuts B relocked.

The link mechanism ensures that the adjustable fence is parallel to fixed fences.



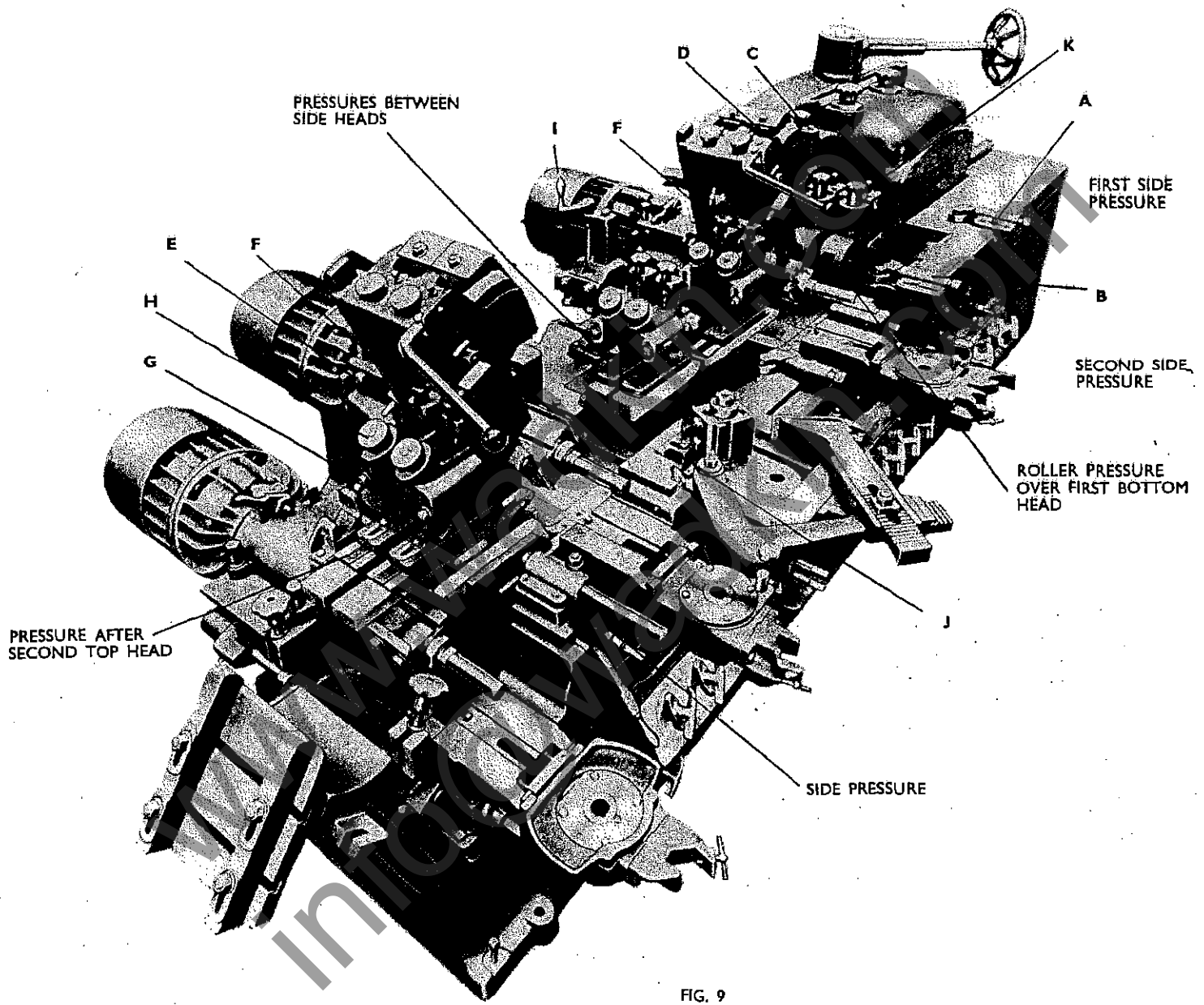


FIG. 9

PRESSURES

1. FIRST SIDE PRESSURE ON FEEDING-IN TABLE

The first side pressure is mounted in a tee slot on the front bottom roll housing as shown in Fig. 9. The whole unit slides forward until the roller strikes the timber and should then be moved forward until the roller swings back approximately $\frac{1}{4}$ " to give the necessary grip for feeding, etc. The whole unit can then be locked in position with nuts A and any further tensioning should be done with the knurled handle B. The spring-loaded roller is flexible enough to allow the timber variations up to a maximum of $\frac{3}{4}$ " without altering the setting of the pressure unit.

2. SECOND SIDE PRESSURE BEFORE BOTTOM HEAD

The second side pressure is adjusted in the same manner as the first side pressure.

3. TOP PRESSURES OVER FIRST BOTTOM HEAD

Two balanced spring-loaded double roller pressures straddle the bottom block. The pressures are mounted on a square bar to enable pressure units to be moved in or out to suit various widths of timber.

For narrow stock one complete roller pressure can be removed by slackening nuts K and sliding the complete unit off the square bar. The square bar carrying the pressure units is secured to the top feed roller cover, so that when feed rollers are adjusted, the pressure units over the bottom block move. For fine setting of pressure rollers, adjusting screw C can be used. Also by turning star handwheel D an additional pressure is given to the rollers.

4. SIDE PRESSURE BEFORE FIRST TOP HEAD

This pressure is adjusted in the same manner as the first side roller pressure.

IMPORTANT. This pressure can be used on timber up to 4" wide only.

5. TOP PRESSURES AFTER FIRST TOP HEADS

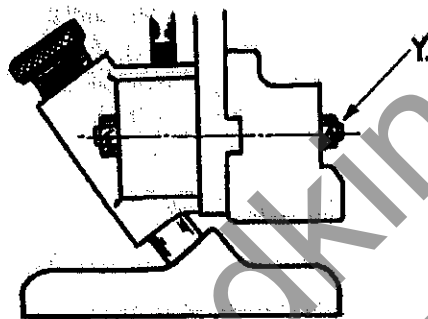
Pressures are carried from the chipbreaker support E, and move up or down with spindle unit when adjusted. For final setting use star handwheels F, but nuts G have to be slackened off before turning handwheels F. (Relock after final setting.)

For extra spring pressure to pressure shoes, turn knurled handwheels H.

PRESSURES (Cont.)

5. TOP PRESSURES AFTER FIRST TOP HEADS (Cont.)

Pressure shoes are fitted with adjustable steel plates to fix wood packing pieces to suit shape of stock. For horizontal adjustment to pressure, slacken off nut at Y.



6. PRESSURE BETWEEN SIDE HEADS

The two pressure units between the side heads slide on a square bar mounted in vertical slide bracket. The vertical slide bracket has an adjusting screw I. The adjustment of the pressure is carried out in the same manner as the pressures after the first top heads.

The pressure shoes are drilled for carrying wood packing pieces to suit stock.

7. SIDE PRESSURE AFTER NEAR SIDE HEAD

This pressure moves with the side near head adjustment.

The pressure unit is slotted to give an independent adjustment, by slackening nut J. The front part of the pressure plate is drilled to fasten wood packing pieces to form the pressure face.

8. SECOND TOP HEAD PRESSURES

These pressures are adjusted in the same manner as the first top head pressures.

9. SIDE PRESSURE AFTER SECOND TOP HEAD

Pressure consists of a bracket with a pressure plate and stem sliding in a bracket. The plate is drilled to enable wood packing pieces to be fitted. The stem is locked in position with a split lock and nut.

10. SIDE PRESSURE ON OUT-FEED TABLE (6 HEAD MACHINE ONLY)

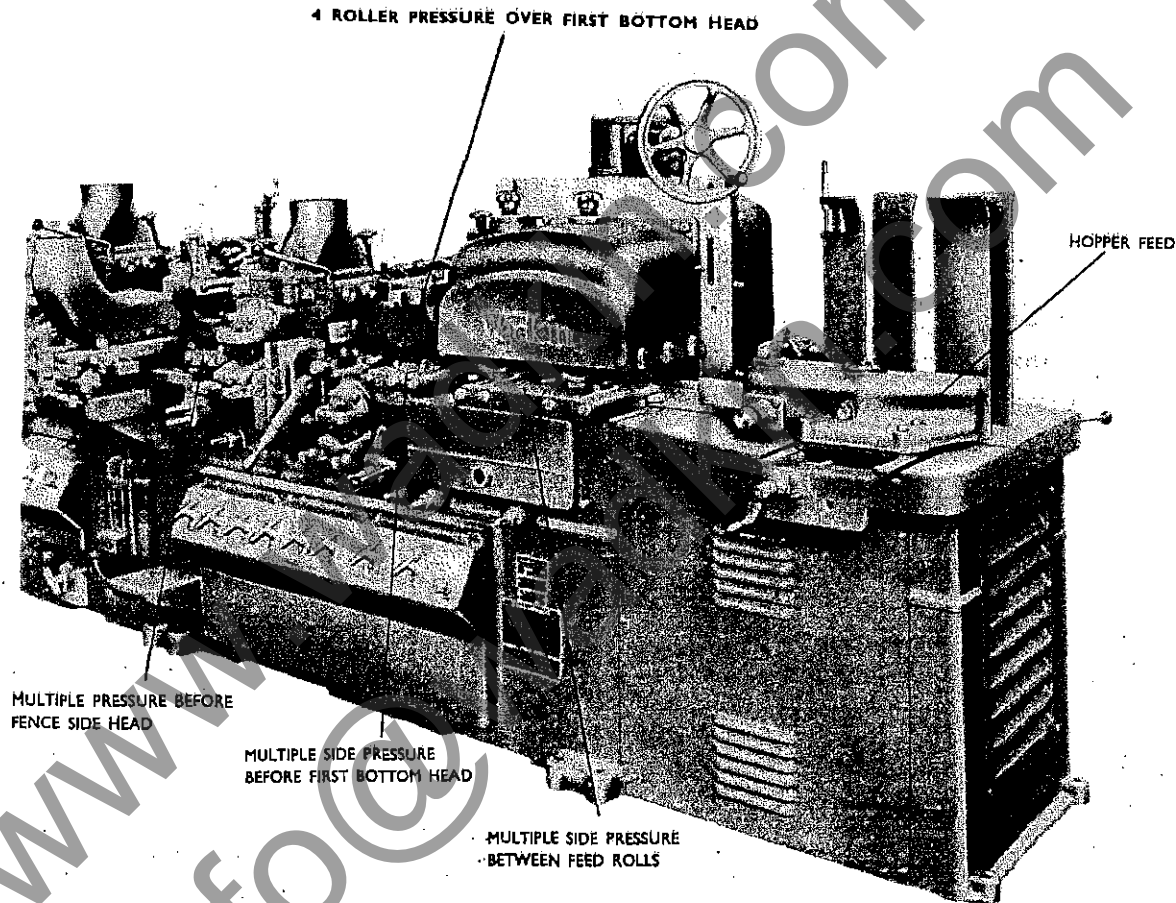
The front fence is adjustable along tee slots in the table.

The fences are drilled to take wood packing pieces.

II. TO SPECIAL ORDER

Pad pressures after first top head and between side heads on models FD85 and FD86 can be replaced by rollers.

HOPPER FEED UNIT TYPE HFU
see separate instruction book No. 1156



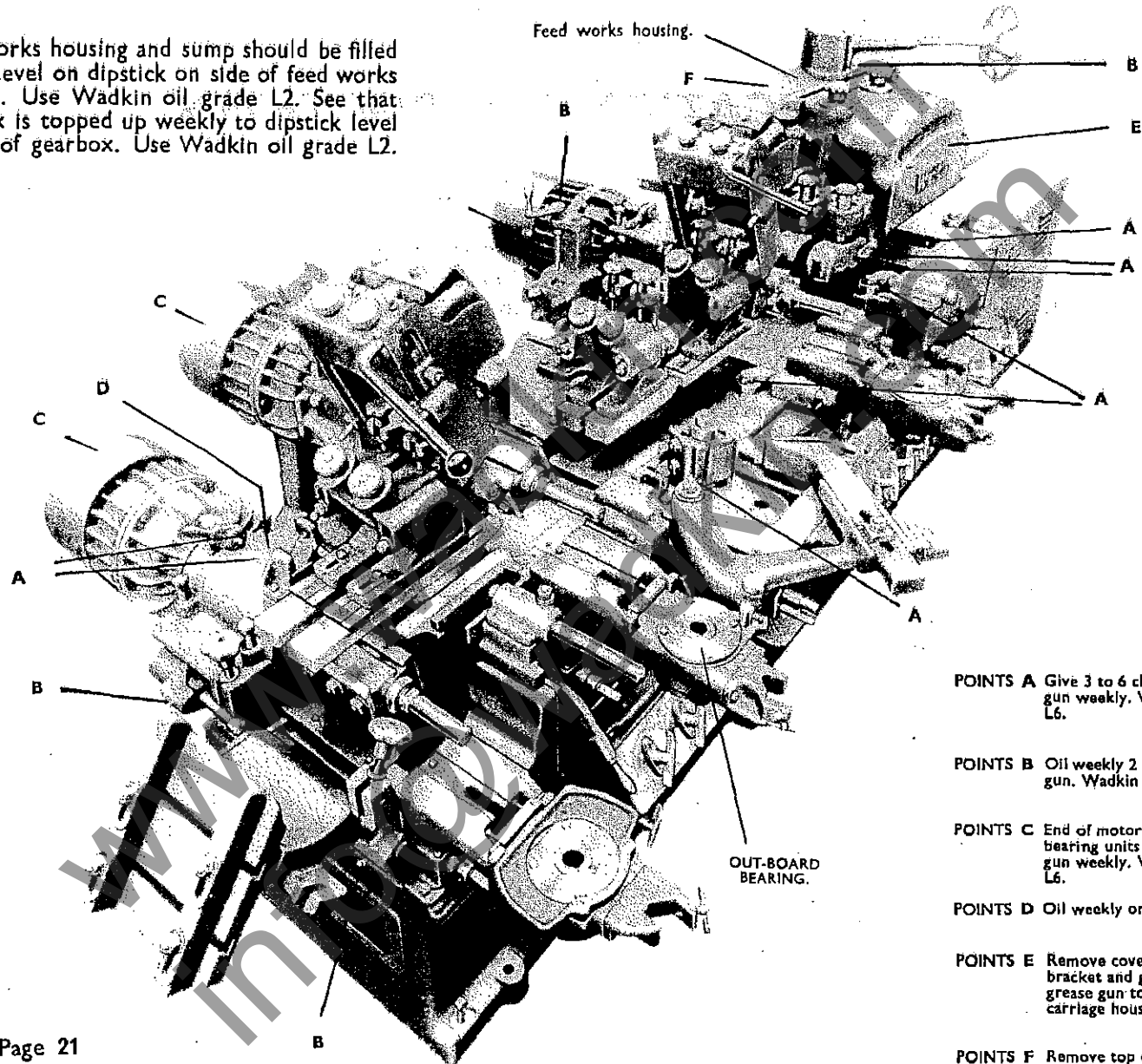
We recommend the use of the special pressures shown above when working small stock and also when using the hopper feed. These pressures are only supplied to special order. Minimum length of stock that can be worked is 12".

BALL BEARING LIST

Position on Machine	Maker's No.	Quantity	Bore	O/Dia.	Width
Raising screw for top feed rollers	S.K.F. O.10	1	1 1/4"	2 1/8"	23/32"
Top feed roll shafts	S.K.F. 2309	4	45 mm.	100 mm.	36 mm.
	S.K.F. 6309	1	45 mm.	100 mm.	25 mm.
	S.K.F. RMS.10	5	1 1/4"	3 1/8"	7/8"
Gearbox	S.K.F. RMS.12	1	1 1/2"	3 3/4"	1 5/8"
	S.K.F. RMS.13	3	1 3/8"	4"	1 5/8"
	S.K.F. RLS.13	4	1 1/8"	3 1/2"	3/4"
Driving gear and sprocket	S.K.F. 2309	4	45 mm.	100 mm.	36 mm.
Bottom feed roller shafts	S.K.F. 2309	4	45 mm.	100 mm.	36 mm.
Driving shaft for bottom feed roller	S.K.F. 2309	1	45 mm.	100 mm.	36 mm.
Raising box for top heads and second bottom head	S.K.F. O.8	2 bearings per head	1"	1 3/4"	5/8"
Outboard bearing sleeves	Hoff. No. 1071	2 in each outboard bearing	55 mm.	100 mm.	21 mm.
Per horizontal spindle top or bottom	S.K.F. 402353	1	30 mm.	62 mm.	16 mm.
	Hoff. No. 1074	2	55 mm.	120 mm.	29 mm.
	S.K.F. 402353	1	30 mm.	62 mm.	16 mm.
Per vertical spindle	Hoff. N.1071	1	55 mm.	100 mm.	21 mm.
	Hoff. N.1072	1	45 mm.	100 mm.	25 mm.
First bottom head	S.K.F. O.10	2	1 1/4"	2 1/8"	23/32"
Frequency changer MZ.6328	D.E. Hoff. ball MS.14V	1	1 3/4"	4 1/4"	1 1/8"
	N.D.E. Hoff. ball MS.14V	1	1 3/4"	4 1/4"	1 1/8"
Driving motor KZ.4826	D.E. Hoff. roller RMS.13	1	1 1/2"	3 3/4"	1 5/8"
	N.D.E. Hoff. ball MS.13V	1	1 1/2"	3 3/4"	1 5/8"
Feed motor	D.E. Hoff. 140P	1	40mm	80 mm.	18mm
	N.D.E. Hoff. 140P	1	40mm	80 mm.	18mm

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Feed works housing and sump should be filled to top level on dipstick on side of feed works housing. Use Wadkin oil grade L2. See that gearbox is topped up weekly to dipstick level on top of gearbox. Use Wadkin oil grade L2.



POINTS A Give 3 to 6 charges of the grease gun weekly. Wadkin grease grade L6.

POINTS B Oil weekly 2 to 3 charges of oil gun. Wadkin oil grade L2.

POINTS C End of motor units and out-board bearing units 1 charge of grease gun weekly. Wadkin grease grade L6.

POINTS D Oil weekly on side of motor units.

POINTS E Remove cover and oil swing bracket and give 1 charge of the grease gun to the roller swing carriage housings.

POINTS F Remove top cover on back of feed works and give 1 charge of grease to main drive housing bearing and to bottom feed rollers.

LUBRICATION INSTRUCTIONS

FEED WORKS

The top roller swing hinge pins are fitted with oil nipples and every week the top feed roll front cover should be removed and these nipples charged with Wadkin grade L2 oil. The chain drive picks up oil from the sump in the feed works housing, and the sump should be filled to the oil level weekly, using Wadkin Grade L2 oil. The filler oil level and drain plug is fitted to the main frame. The gears run in an oil bath and the gear box oil level should be "topped up" weekly to the oil level using Wadkin Grade L2. The spiral gearbox on the feed works housing for raising and lowering the top feed rolls is fitted with a 90° tip-up oiler and the oil level should be checked weekly and "topped up" if necessary to the top of the oiler using Wadkin Grade L4 oil. The tip-up oiler on the handwheel shaft boss requires three to four drops of Wadkin Grade L4 oil weekly.

As will be seen from the lubrication instructions Wadkin oils and greases are recommended, but if it is desired to use lubricants other than Wadkin the following equivalents are listed below :—

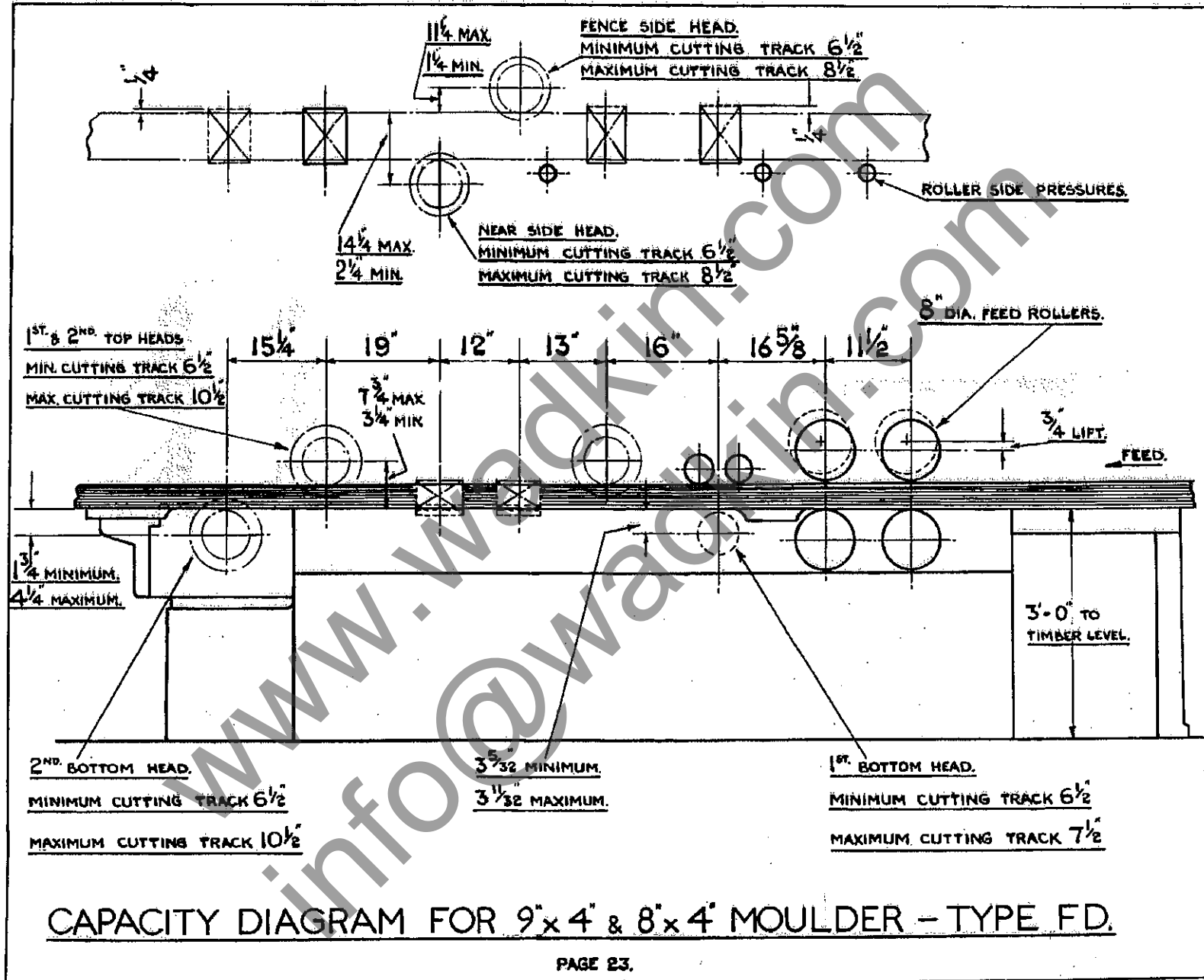
Wadkin Grade	Castrol	Mobil Oil Co.	Shell
L1	Hyspin 70	DTE Oil Light	Vitrea Oil 27
L2	Alpha 417	DTE Oil BB	Vitrea Oil 69
L4	Perfecto NN	Vactra Oil Heavy Medium	Vitrea Oil 33
L6	Spheerol S	Mobilux Grease No. 2	Alvania Grease No. 3

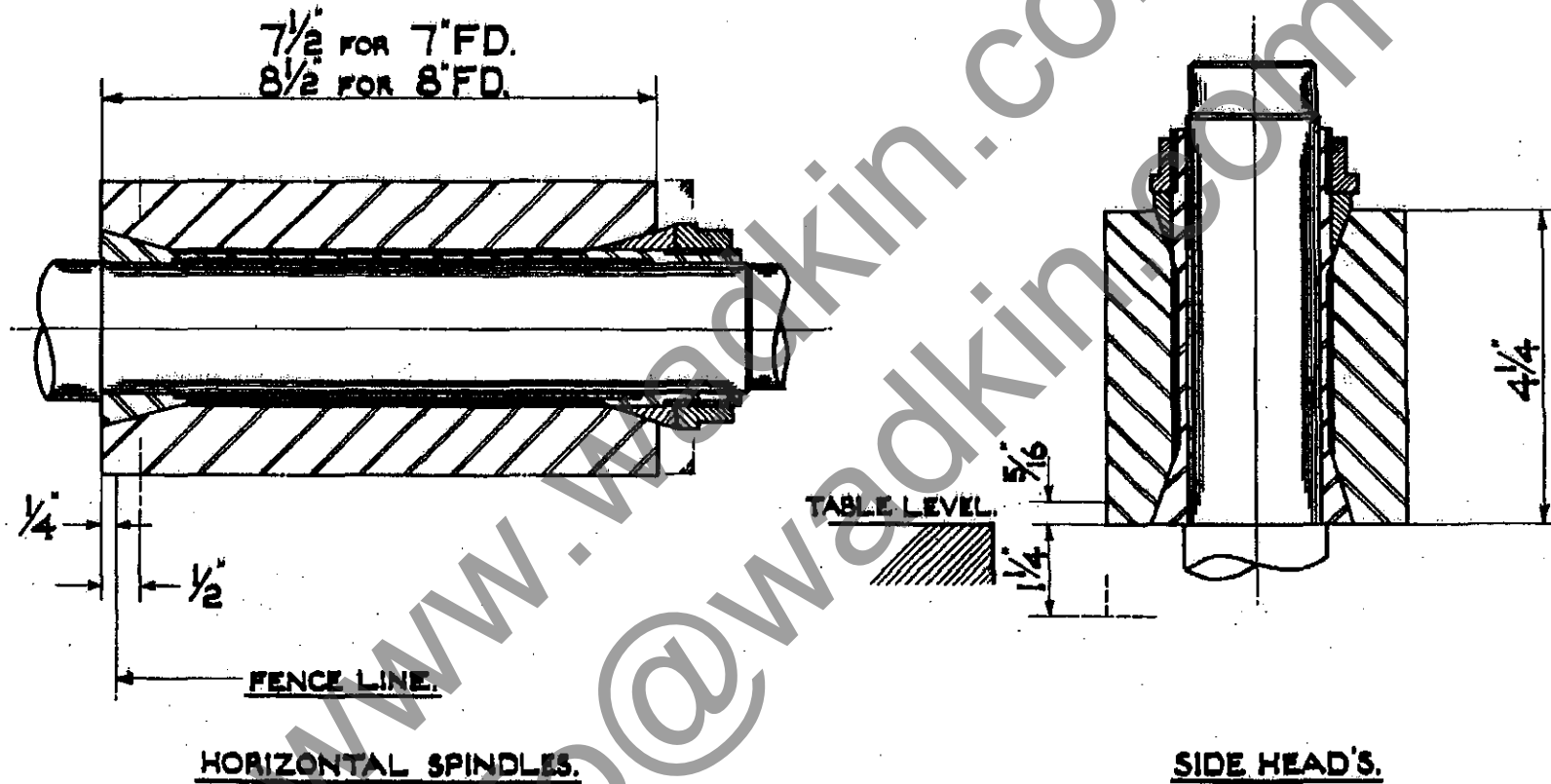
IMPORTANT

CUTTER SPINDLES

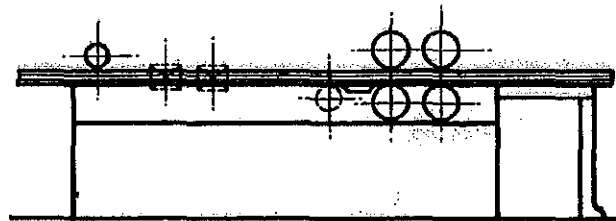
The horizontal cutter spindles must be lubricated daily. Fill to the top of oil cup shown in Page 6 with Wadkin Grade L1 oil and give one depression of the grease gun weekly to the nipple at the motor end of the spindle, using Wadkin Grade L6 grease. A drain plug is fitted under the oil cup to drain away surplus oil. The vertical cutter spindles shown Page 12 should be lubricated by removing the plug marked "OIL" at the top of the spindle and filled daily with Wadkin Grade L1 oil. A pipe is fitted to the vertical heads to drain away surplus oil. Give one depression of the grease gun weekly, using Wadkin grease Grade L6, to the nipple at the motor end of the cutter spindle.

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SECTION SHOWING ADJ. OF HORIZONTAL AND VERTICAL SPINDLES.



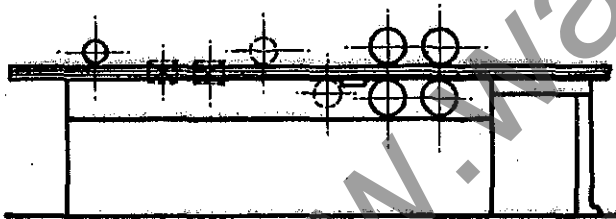
FD 81. 4-HEAD.

FIRST BOTTOM HEAD, FENCE
SIDE HEAD, NEAR SIDE HEAD AND
TOP HEAD.



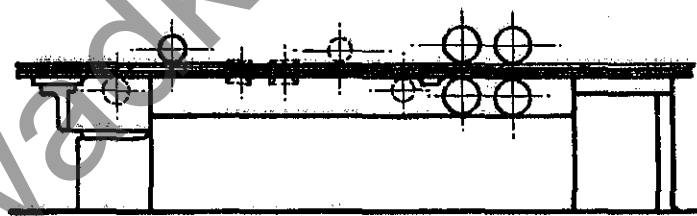
FD 82. 5-HEAD.

FIRST BOTTOM HEAD, FENCE SIDE HEAD,
NEAR SIDE HEAD, TOP HEAD AND
SECOND BOTTOM HEAD.



FD 85. 5-HEAD.

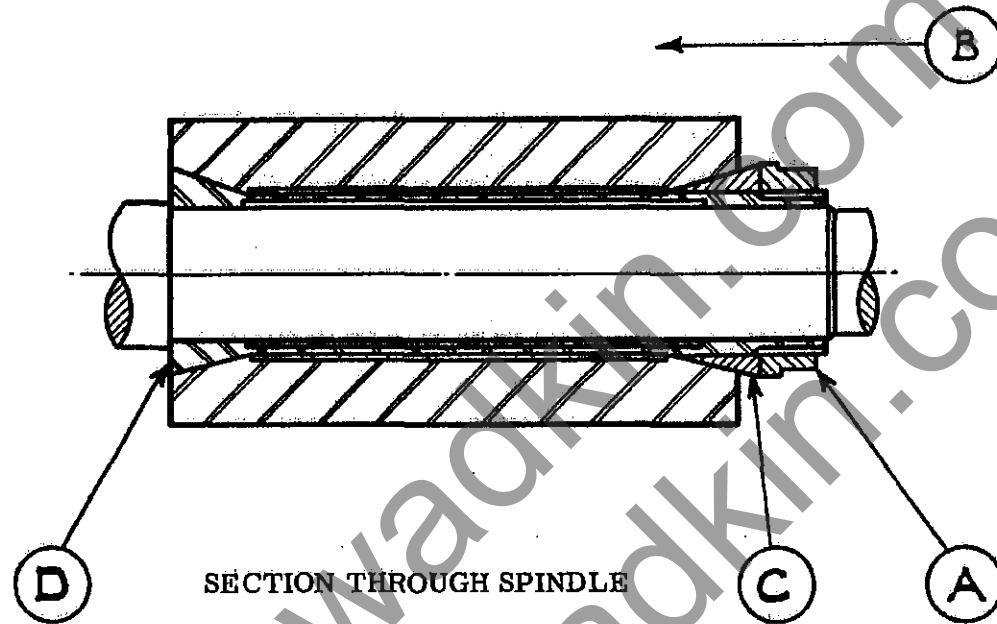
FIRST BOTTOM HEAD, FIRST TOP
HEAD, FENCE SIDE HEAD, NEAR
SIDE AND SECOND TOP HEAD.



FD 86. 6-HEAD.

FIRST BOTTOM HEAD, FIRST TOP HEAD,
FENCE SIDE HEAD, NEAR SIDE HEAD,
SECOND TOP HEAD & SECOND BOTTOM HEAD.

CUTTERBLOCK SPINDLE

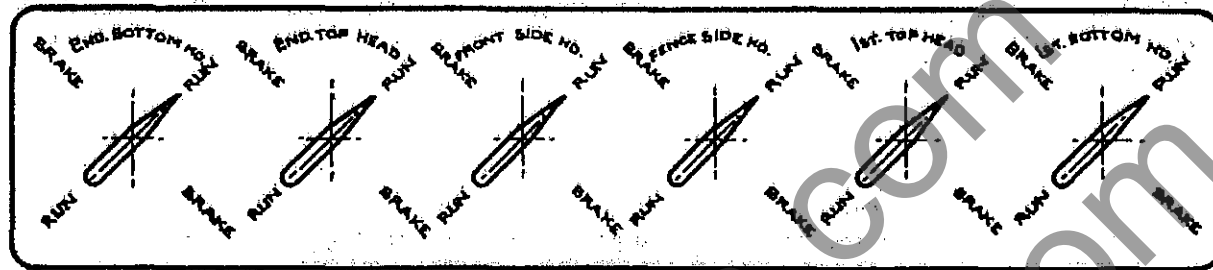


To remove cutterblock from spindle, either horizontal or vertical, proceed as follows :-

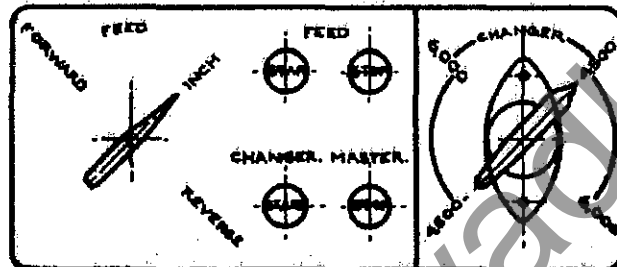
1. Unscrew nut 'A'.
2. Tap block home in direction of arrow 'B' using a mallet. This should release cone 'C'.
3. Remove cone 'C'.
4. Tap block off sleeve in opposite direction to arrow 'B'.
5. Finally remove sleeve 'D'.

To re-assemble reverse the above procedure.

OPERATING INSTRUCTIONS FOR ELECTRICAL CONTROLS.



HEAD MOTOR CONTROL PANEL. FIG. 11.



INFEEED CONTROL PANEL. FIG. 12.



OUTFEED CONTROL PANEL. FIG. 13.

TO START THE MACHINE

Close isolating switch, turn the frequency changer switch handle (Fig. 12) to the '4,500' or '6,000' position and press the 'start changer' button. The head motors can now be started as follows:—turn the selector switches (Fig. 11) to the 'run' position and press the respective 'start' buttons; wait until each head has reached full speed before starting the next. To stop head motors:—press the respective 'stop' buttons. Should it be required to brake the head motors, turn one switch at a time to the 'brake' position and hold the 'stop' button depressed until the head comes to rest, do not hold the 'stop' button depressed after the head has stopped otherwise it will rotate in the opposite direction. Note:—The braking will be inoperative if more than one switch is in the 'brake' position.

TO START THE FEED

Turn feed switch (Fig. 12) to the 'forward' position and press 'start' button. To stop the feed:—Press 'stop' button. The feed can also be stopped by pressing the 'inch and stop feed' button at the outfeed end of the machine (Fig 13).

To inch the feed:—Turn the feed switch to the 'Inch' position and press the 'start' button. To reverse the feed:—Turn the switch to the 'reverse' position, and press the 'start' button, the feed will only run in 'reverse' whilst the 'start' button is held depressed.

On both the infeed panel (Fig. 12) and the outfeed panel (Fig. 13) a 'master' stop button is fitted which when operated stops the 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.

OVERLOAD

Should the machine stop due to overload, wait for a short time to allow the heater coils to cool, then start in the usual manner. The overloads are set at these Works at 'Auto' for automatic reset after tripping. If set at 'Hand' the plungers on the overload assemblies must be depressed to reset.

GENERAL ELECTRICAL MAINTENANCE

There is no particular maintenance required in connection with the electrical gear on the machine and unless it is failing to operate satisfactorily it is best to leave the covers tightly closed and not interfere with the control gear.

If the contacts are actually failing to make contact due to wear and tear they can be changed, but they should not be changed because they look burnt, and they should never be filed.

ELECTRICAL SPARES

Brushes for MZ.6328 frequency changer	6 off SK.82/326 Morgan Link EGO.
Head switch	Ref.: SR.3511CC6.
Feed switch	Ref.: SR.328BE60.
Start and stop P.B.'s	Type 759.

MAGNETIC STARTERS

Contacts for 3 pole size No. 2 (set per pole)	Cat. No. MSA.580.
Contacts for 3 pole size No. 1 (set per pole)	Cat. No. MSA.567.
Magnetic coil size No. 2	Cat. No. MS.250/3.
Magnetic coil size No. 1	Cat. No. MS.150/3.

INSTALLATION INSTRUCTIONS

The cabling between the heads, feed, frequency changer and control gear is carried out by Wadkin Ltd. No connections are broken for transit and it is only necessary to connect the supply cables to the appropriate terminals.

Proceed as follows:—

1. Use 60 amp. cables for connecting the machine to a 400 volt 3 phase 50 cycle alternating current electric supply. These should be carried in steel conduit and secured to the machine by means of locknuts at the point of entry.
2. Connect the supply cables to the terminals provided in the isolating switch.
3. Connect the machine solidly to 'EARTH'.
4. After having ascertained that the lubrication instructions have been carried out as page 22, close the main switch and start the frequency changer, turn the feed switch handle (Fig. 12) to the 'forward feed' position and press the 'start feed' button, check the rotation of the feed rollers if this is incorrect for forward feeding, stop the machine and change any two of the incoming mains supply cables.

Note:—Do not attempt to correct the rotation local to the feed motor, when the feed rollers are running in the correct direction all the other movements will be correct.

The machine is now ready to operate and the control can be carried out as described in the 'OPERATING INSTRUCTIONS FOR ELECTRICAL CONTROLS'.

FAILURE TO START

1. The supply is not available at the machine.
2. The main switch has not been closed.
3. The master stop buttons have not been unlocked.
4. The fuses either at the machine or the distribution board have not been fitted or have blown.
5. Imperfect connections causing faulty contact.

Note:—To obtain access to the 60 amp. high rupturing capacity fuses on the machine, open the door at the rear of the machine at the outfeed end. If items 1 to 4 are in order the frequency changer should start when the 'start changer' button is pressed. If this fails to do so the operating coil circuit should be carefully checked through (see diagram of connections D.677/2) until the break is found. The overload trips and the retaining contact should be especially examined.

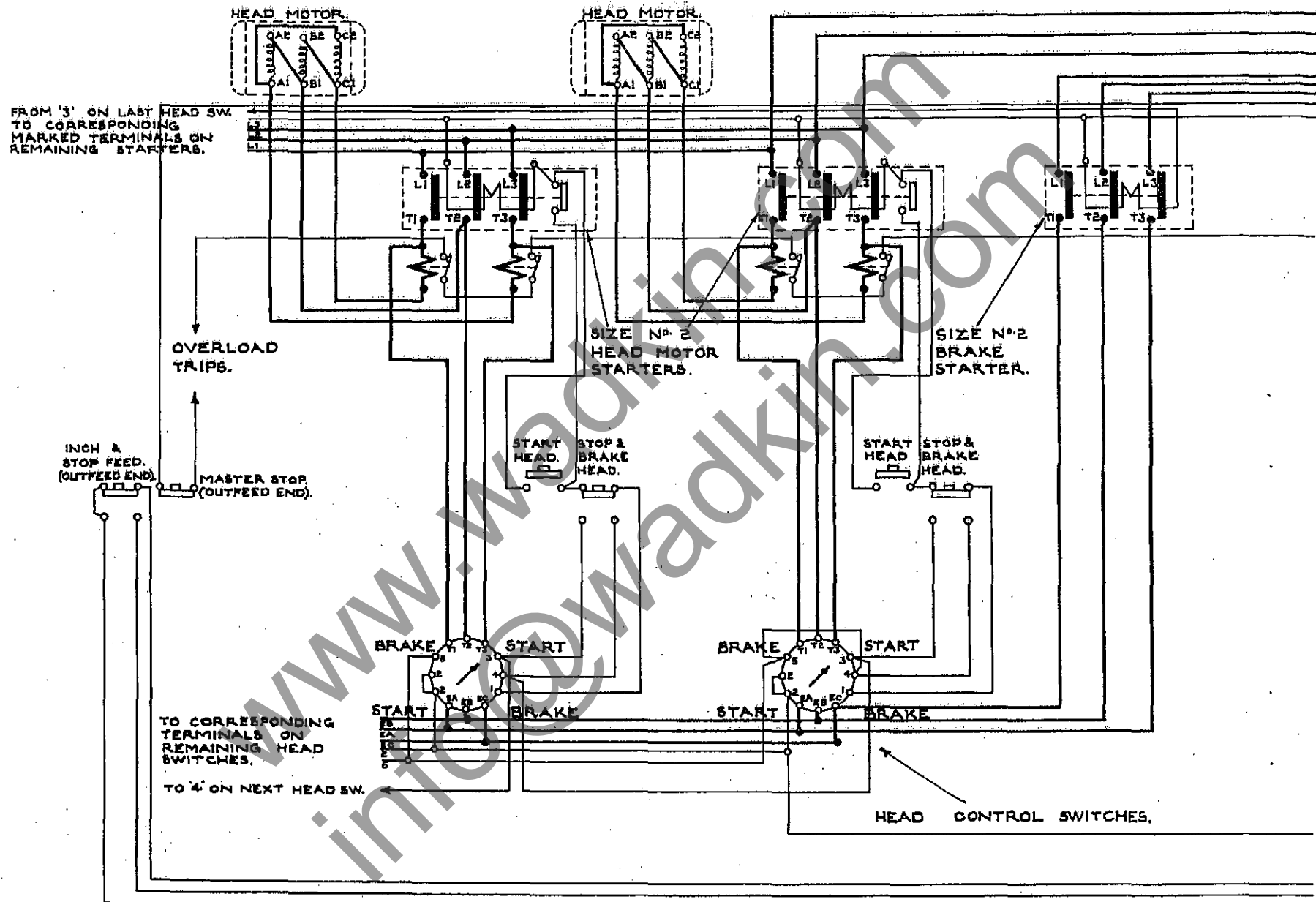
FAILURE OF HEAD MOTORS TO ATTAIN FULL SPEED

Interchange any two leads of the frequency changer excitation winding A3-B3-C3.

Ensure that the frequency changer drive is not slipping due to slack vee belts.

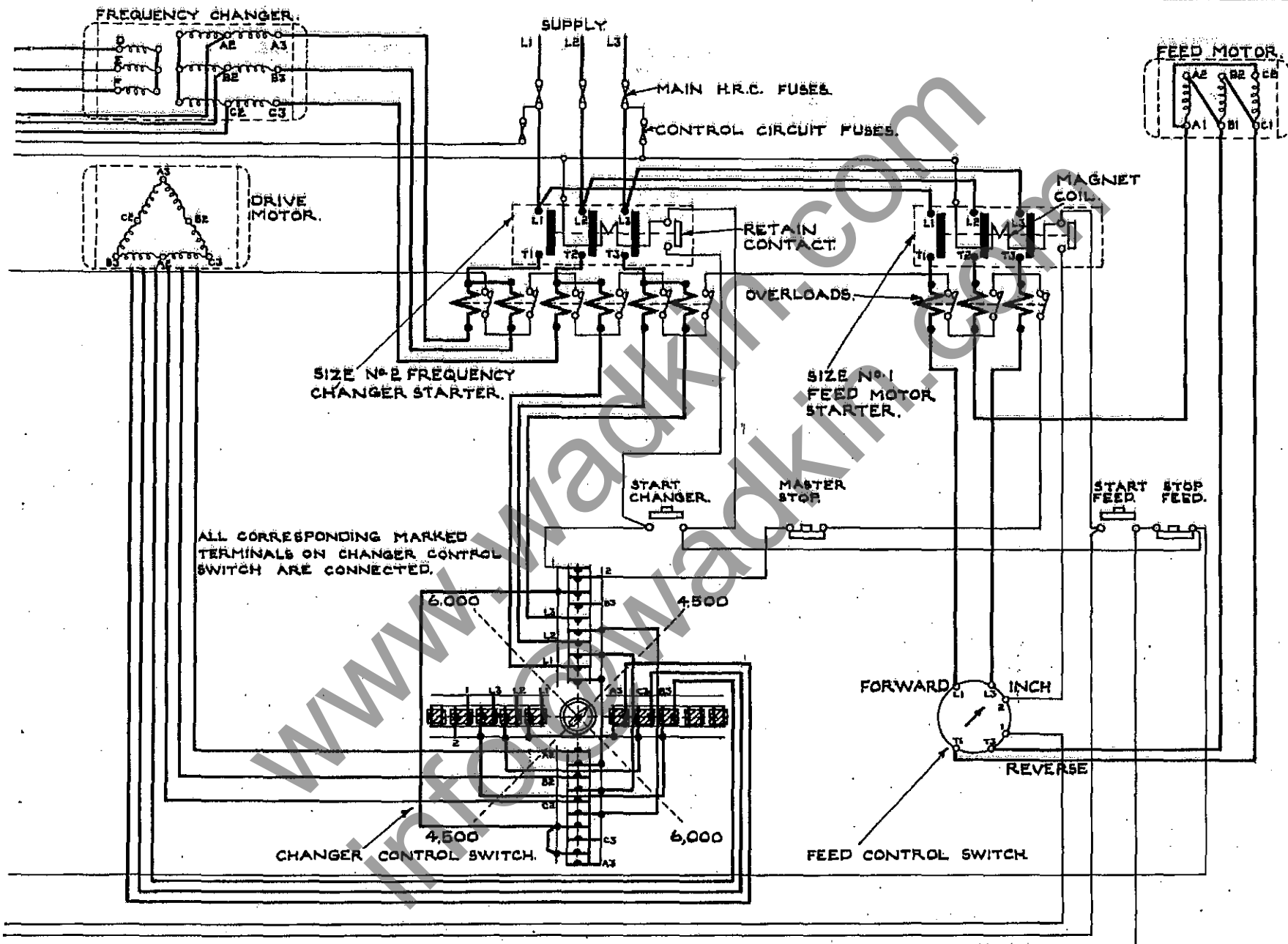
Access to the control gear is obtained by removing the hexagon bolts along the top of each cover and swing the cover open.

Wadkin OPERATING AND MAINTENANCE INSTRUCTIONS



HEAD CONTROL SWITCH CONNECTIONS.
 'START' CONNECTS 1 TO 2, 3 TO 4.
 'BRAKE' CONNECTS 5 TO 2, EA TO T1, EB TO T2, EC TO T3.

Wadkin OPERATING AND MAINTENANCE INSTRUCTIONS



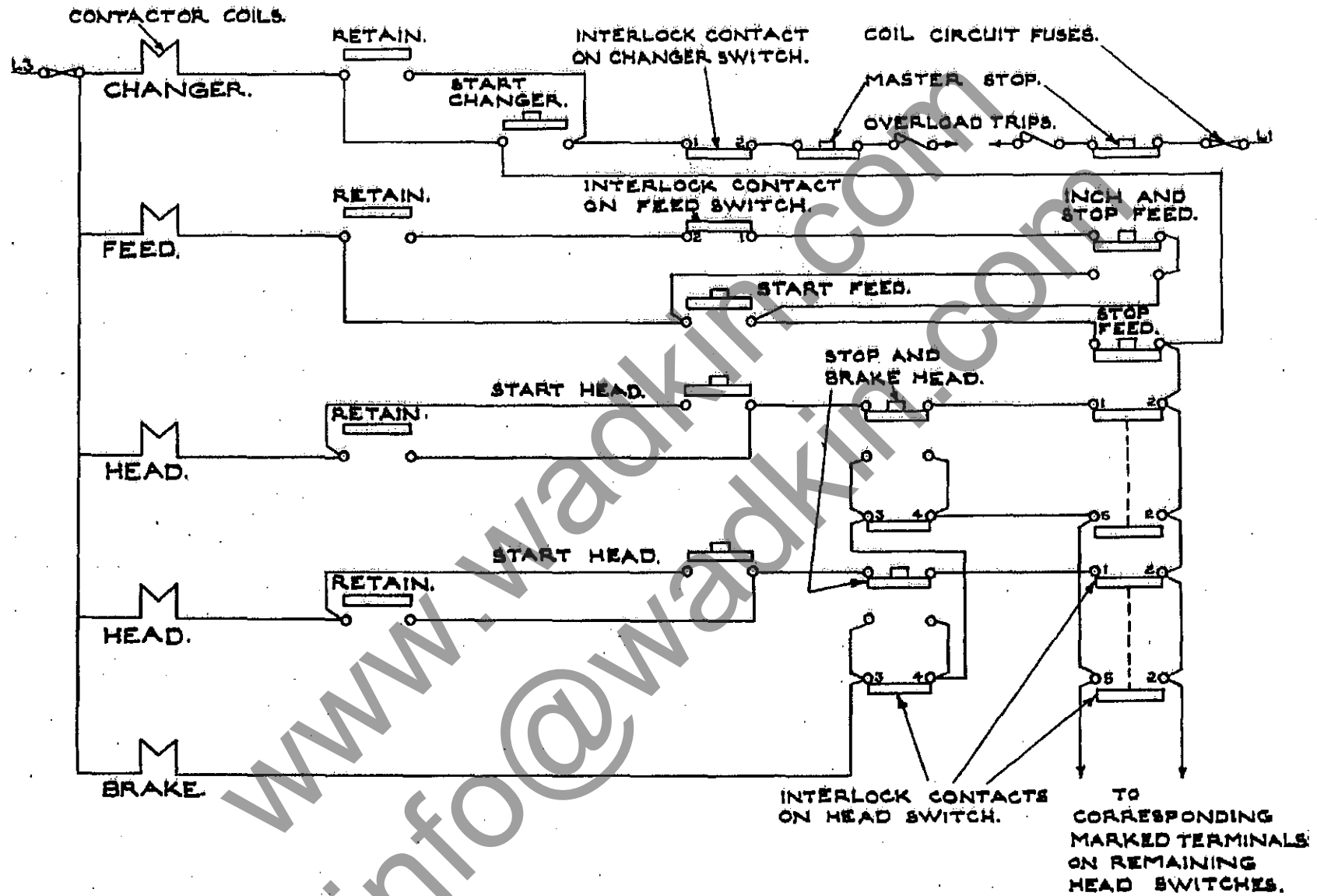
ALL CORRESPONDING MARKED TERMINALS ON CHANGER CONTROL SWITCH ARE CONNECTED.

CHANGER CONTROL SWITCH CONNECTIONS.
 4,500 CONNECTS L1 TO A3, L2 TO C3, L3 TO B3, 1 TO 2.
 6,000 CONNECTS L1 TO A2, L2 TO BE, L3 TO C2, 1 TO 2.
 A3 TO B3, B3 TO C3, C3 TO A3.

FEED CONTROL SWITCH CONNECTIONS.
 'INCH' CONNECTS L1 TO T1, L3 TO T3.
 'FORWARD' CONNECTS L1 TO T1, L3 TO T3, 1 TO 2.
 'REVERSE' CONNECTS L1 TO T3, L3 TO T1.

D.677/2

Wadkin OPERATING AND MAINTENANCE INSTRUCTIONS



KEY DIAGRAM OF CONTROL CIRCUIT.



**... blow away harmful dust,
chips and dirt with a
Wadkin Electric Blower**

No motor can run at its maximum efficiency with its ventilating duct or control gear covered with dust and dirt. Sooner or later the resultant overheating will cause serious trouble.

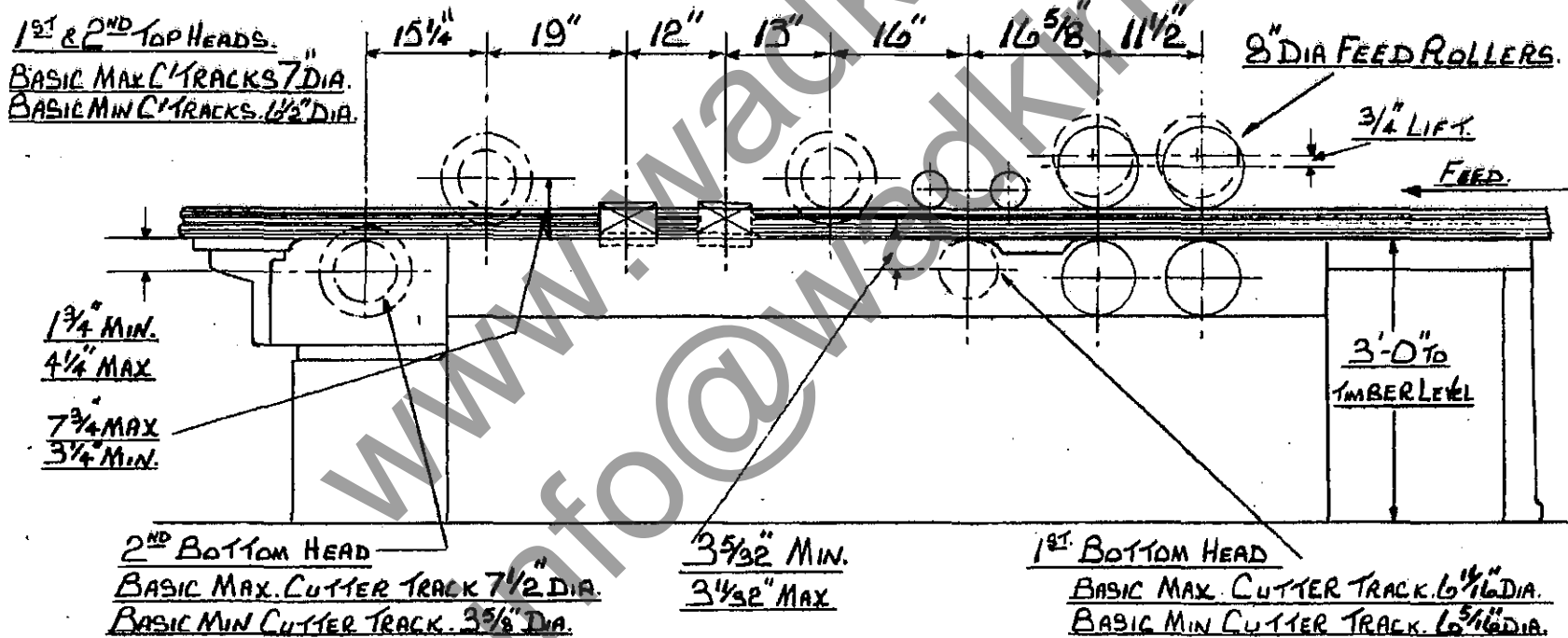
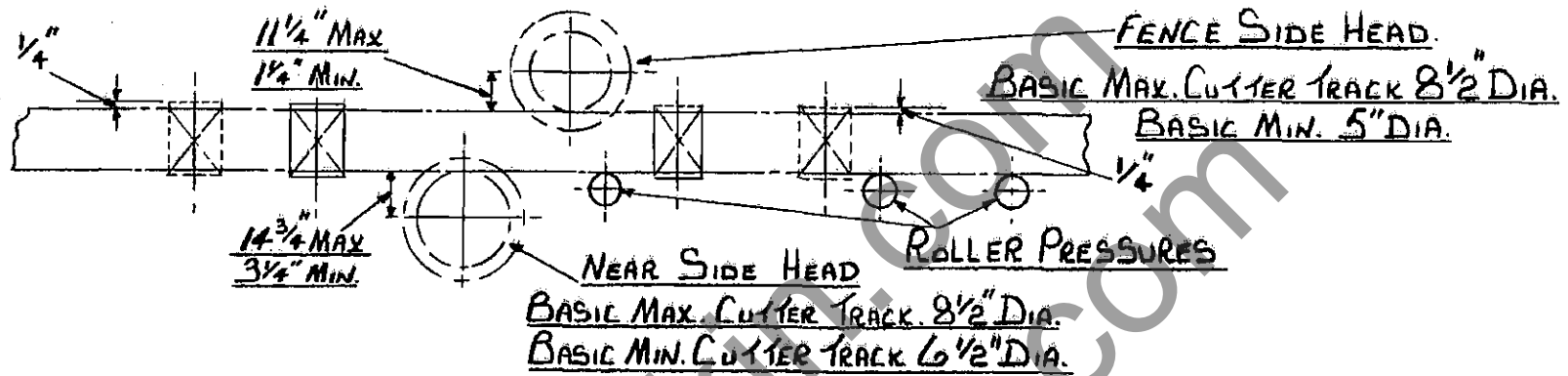
Similarly, accumulations of chips and dust, in the mechanical parts of the machine can interfere with its efficiency. A few minutes a week for blowing down all Woodworking Machinery will be amply repaid in better and easier running, in increased life, and freedom from breakdown.

Blowers can be supplied for single phase A.C. or Direct Current for any voltage up to 250.

Please state voltage when ordering.

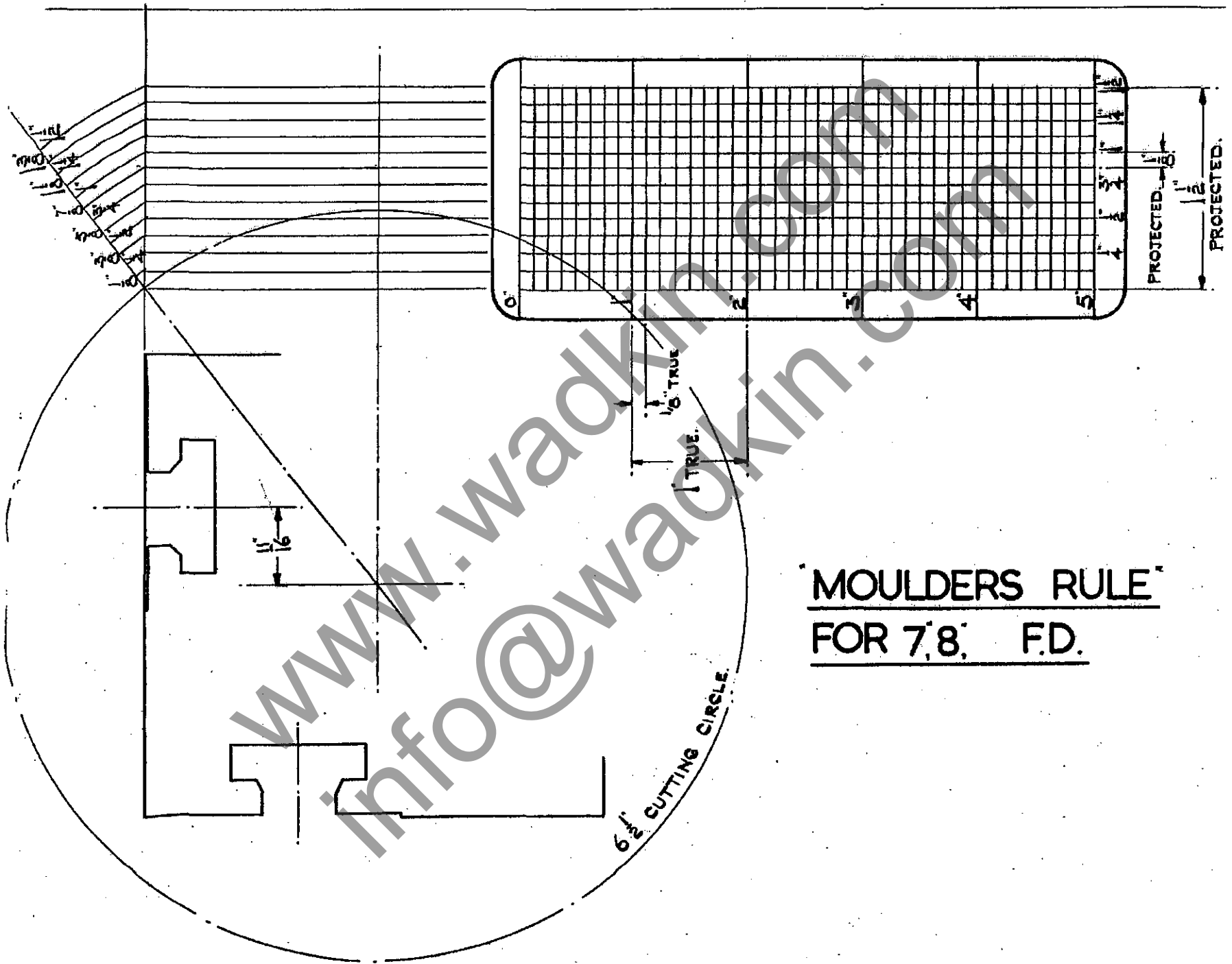


Wadkin OPERATING AND MAINTENANCE INSTRUCTIONS



BASIC CUTTER TRACKS FOR 7" 8" & 9" F.D.

Wadkin OPERATING AND MAINTENANCE INSTRUCTIONS



MOULDERS RULE
FOR 7.8 FD.

Wadkin OPERATING AND MAINTENANCE INSTRUCTIONS

SUPPLEMENT TO 8" and 12" FD INSTRUCTION BOOK

Pneumatic Feed

This machine is provided with pneumatic lift to top feed rolls. It will allow $\frac{3}{4}$ " timber variation in timber thickness without altering the main roller setting. Mounted on the top roll swings are pneumatic cylinders which are supplied through a control valve in the main control box, which is positioned on the machine feed works. These cylinders may be cushioned by adjustment of flow regulator mounted on both up and down strokes. The control valve is operated by the push buttons on the main control box. The Yellow one raising the rolls and the Blue one lowering the rolls.

The main air pressure at the filter and lubricator should be set at 80lbs/sq. in. Mounted on the main control box is a balance valve which should be set to 40lbs/sq. in. by balancing out with a knob, on the front of the panel until the required pressure is obtained and no air is escaping through the valve.

The top rolls should be set up to the thickness being fed, indicated on the scale at the side of the feed works housing, with rolls in up position. To operate feed rolls :-

1. Start frequency changer. This will energise the solenoid valve, permitting pilot air to flow to the control buttons.
2. Then start machine in normal manner.
3. Feed in under the top feed rolls, the first piece of timber and then bring down the rolls on the timber.
4. Set up and feed in normal way.

When feeding, if timber slips, the boost pressure button can be pushed to give full line pressure to the feed rolls. If the slipping continues, the balance valve should be adjusted to give more pressure to stop slipping.

NOTE

When the master stop button is depressed, the solenoid valve is de-energised and the top rolls are automatically raised and inoperative.

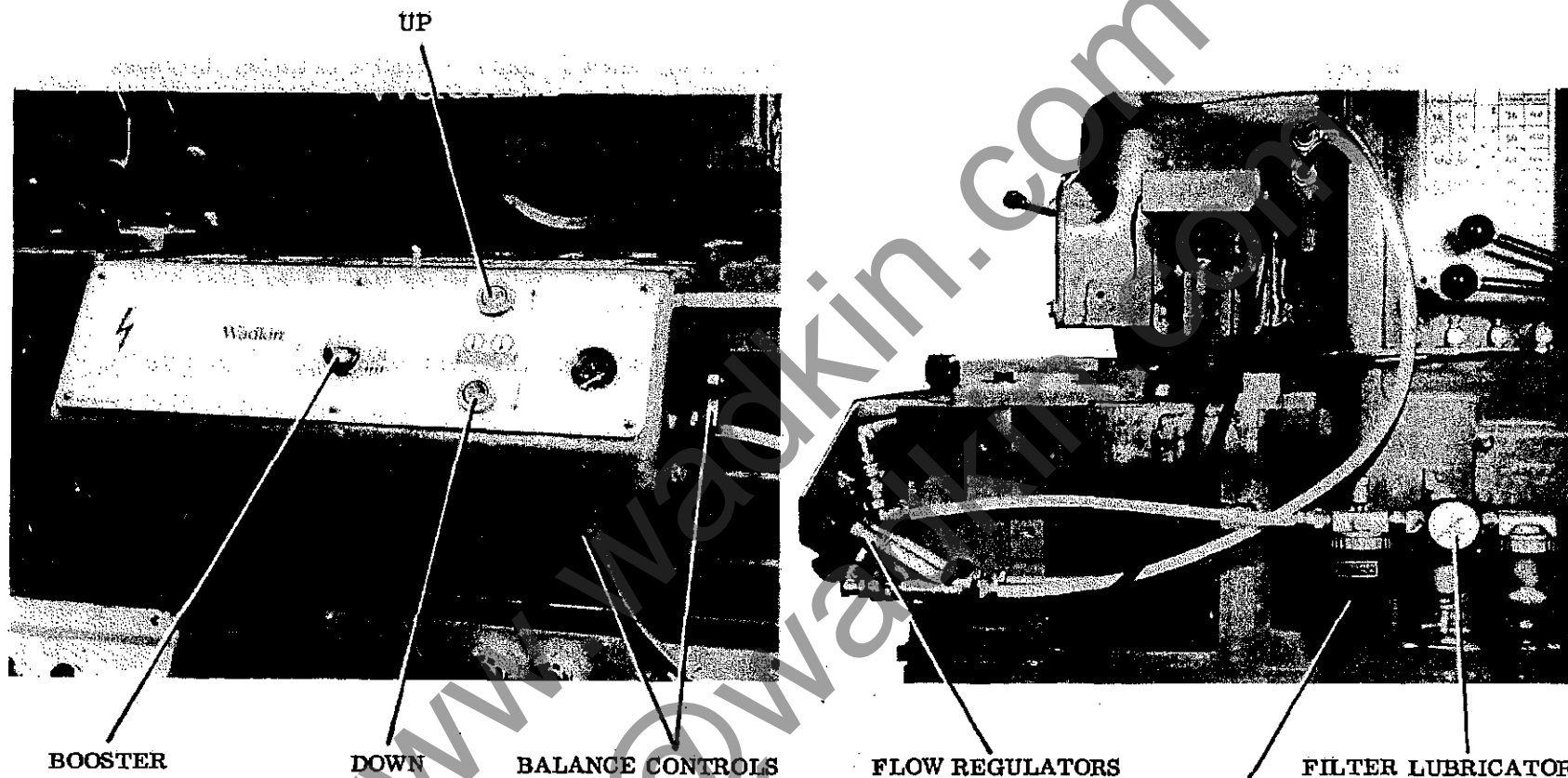
When a timber gate is fitted (to special order) this should be set just above the normal thickness of the timber being fed. If a piece of oversized timber is fed in, the rolls will raise and become inoperative.

An overload cut-out can be incorporated in any head motor circuit to special order. The solenoid valve is then connected to this cut-out so that if the head is overloaded, the solenoid is de-energised and lifts the rolls.

The trip amps adjuster on the overload must be set at a point just above the motor starting current. No oil is required in this adjuster as undamp action is required.

The pneumatic circuit is protected under British Patent No. 986651 and is shown in diagram FD. 10069, 8" FD.

Wadkin OPERATING AND MAINTENANCE INSTRUCTIONS



USE MOBIL ALMO OIL No. 1.

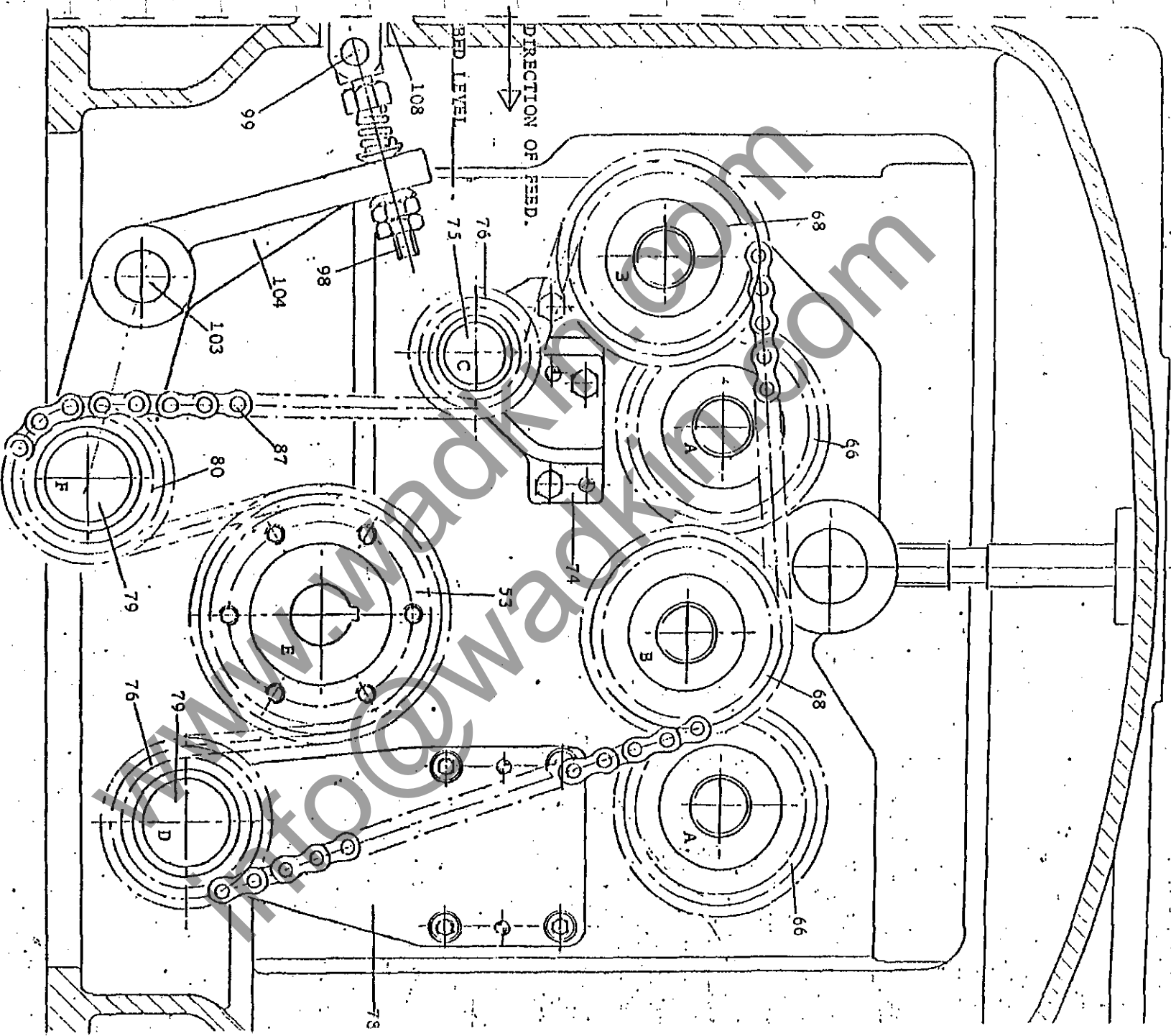
8 1/2
11 1/2

Information Sheets

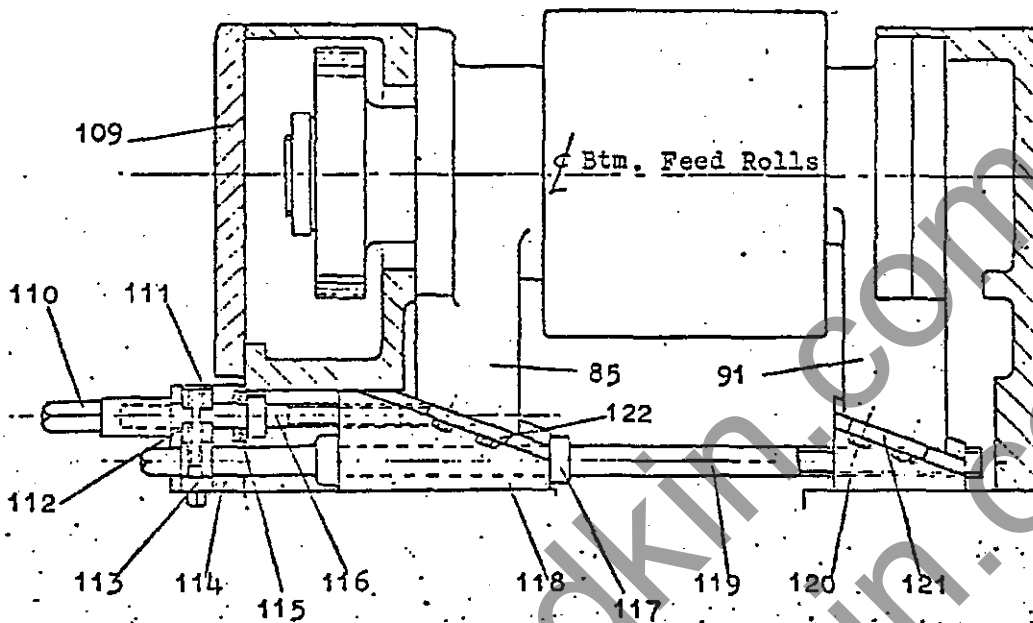
IMPORTANT -- PLEASE NOTE:

When ordering spares or requesting prices please state machine serial number and test number to enable correct parts to be identified.

www.wadkin.com
info@wadkin.com

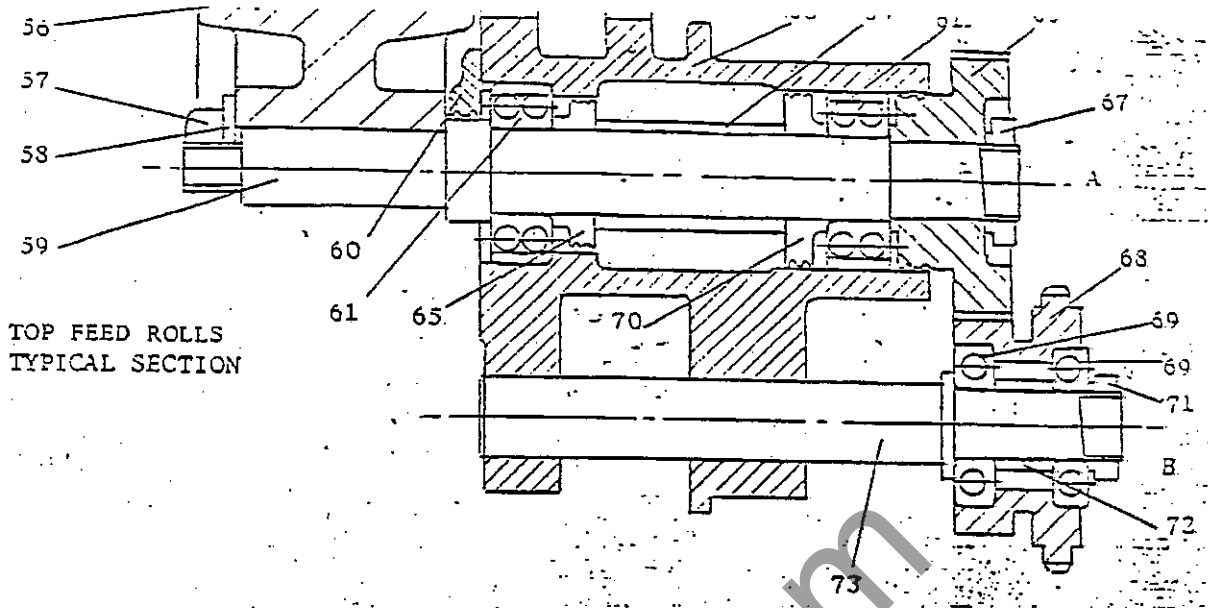


8" FD Feedworks -- rear elevation

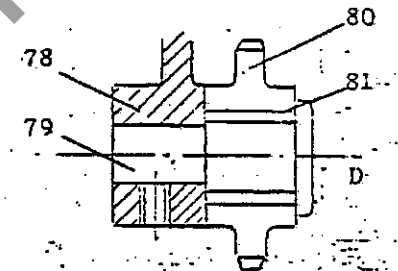
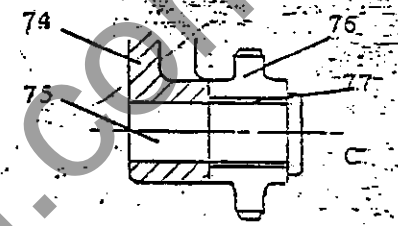


8"FD Adjustment of Bottom Feed Rolls

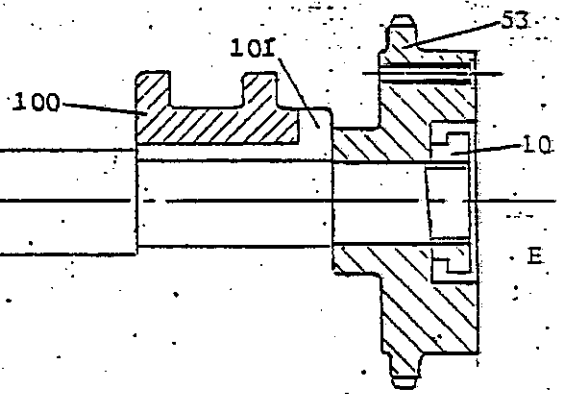
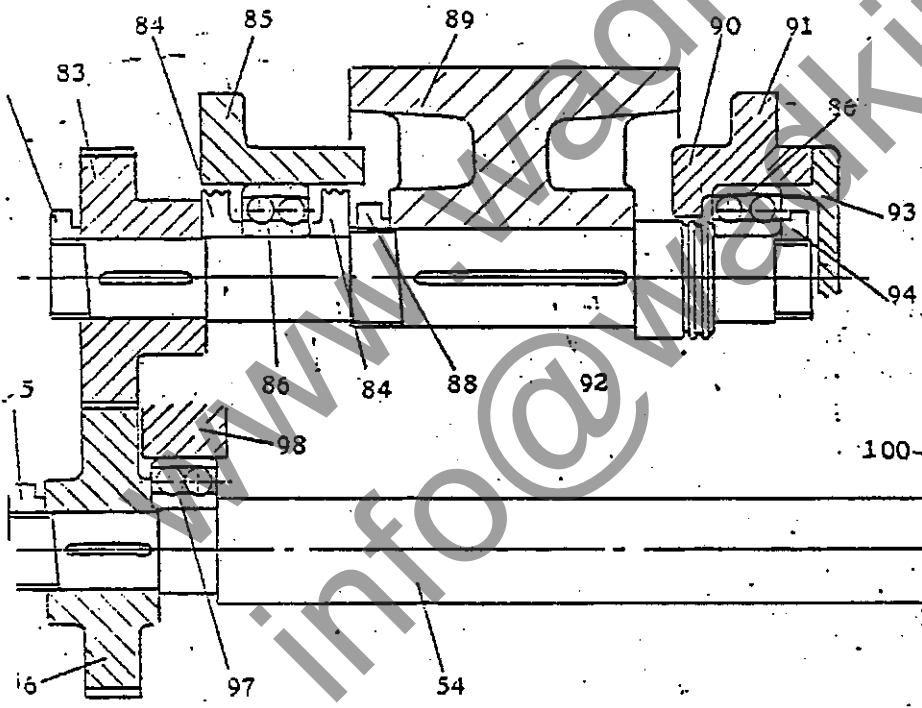
Item No.	Description	Part No.
109	Cover Plate for Front Housing	FD 10223
110	Square for Adjusting Screw	FD 7706
111	Locking Bush (Top)	FD 12689
112	Locking Bush (Btm.)	FD 12688
113	Locking Screw	FD 12690A
114	Gland Bracket	FD 12684
115	Thrust Bearing FT 5/8	K0604165
116	Adjusting Screw (Rise & Fall)	FD 12685
117	Loose Collar No.3	K0520103
118	Adjusting Wedge (Front)	FD 12213
119	Adjusting Screw (Pitch)	FD 8583A
120	Adjusting Wedge (Rear)	FD 8546
121	Front Retaining Plate	FD 12404
122	Front Retaining Plate	FD 12404



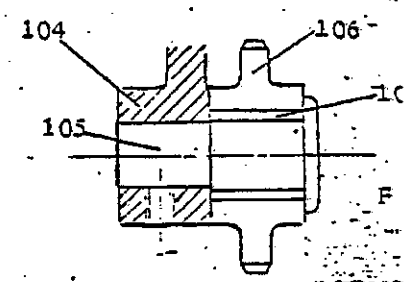
TOP FEED ROLLS
TYPICAL SECTION

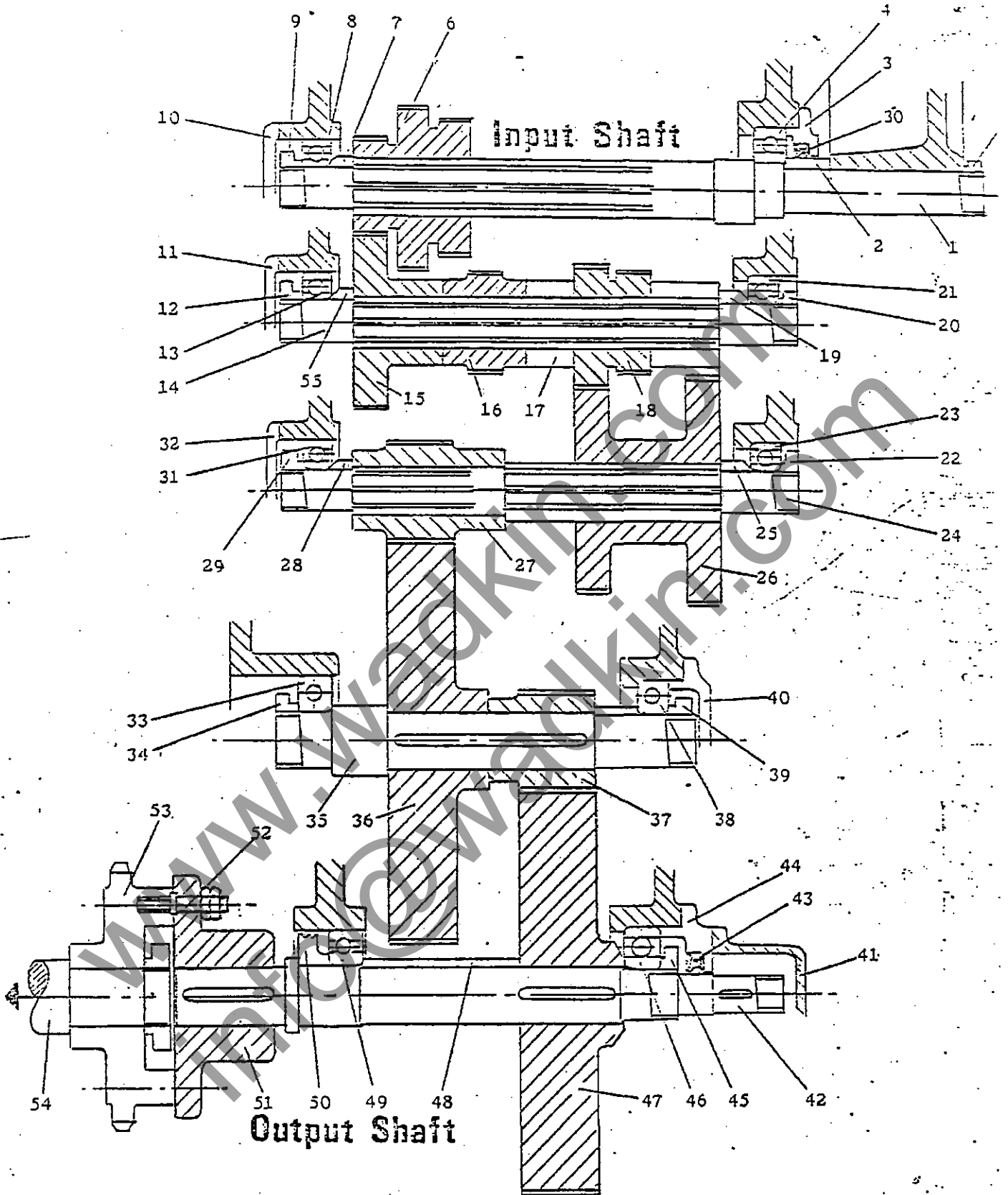


BOTTOM FEED ROLLS
TYPICAL SECTION



8" FD Feedworks --
general section

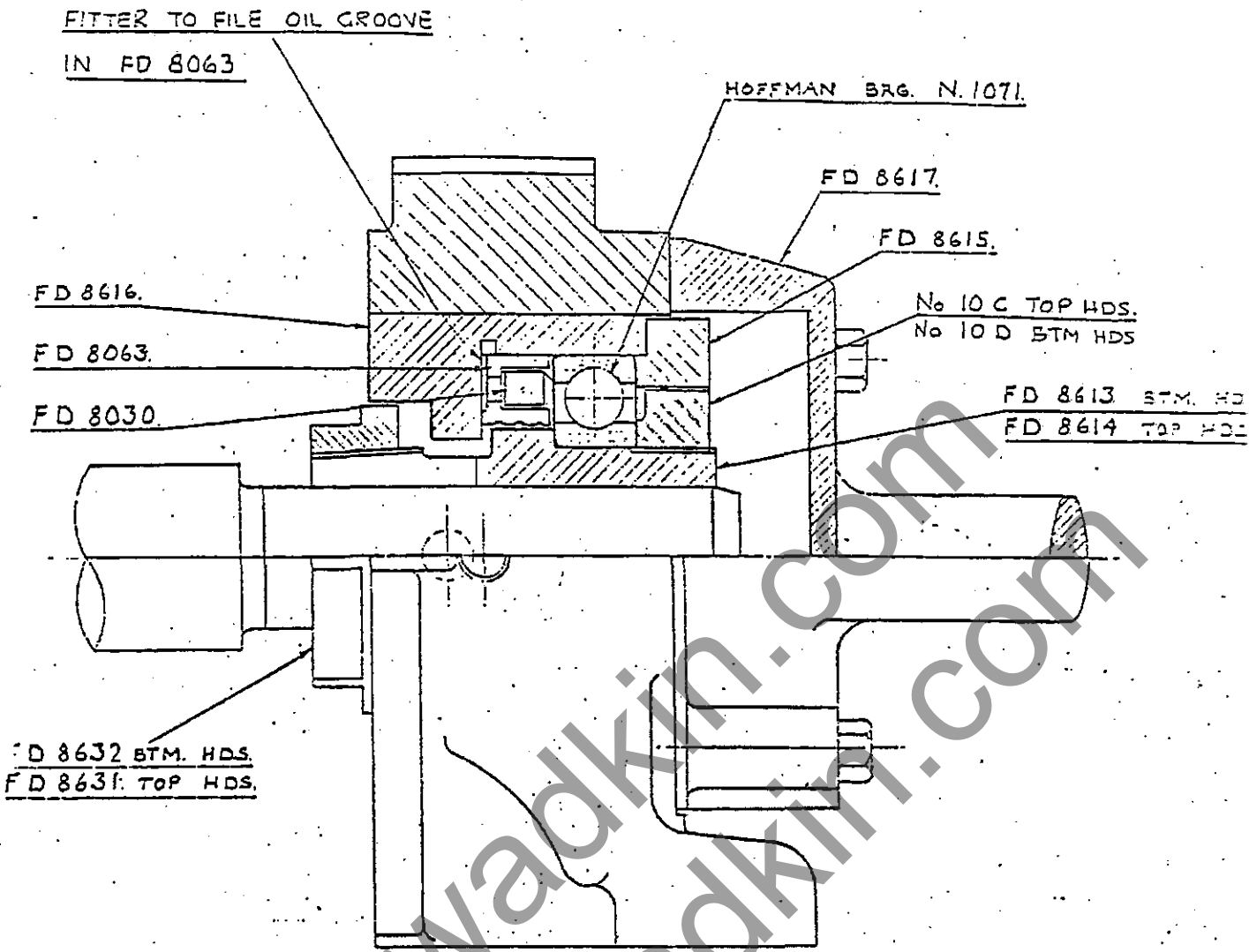




8"FD GEARBOX
General Section

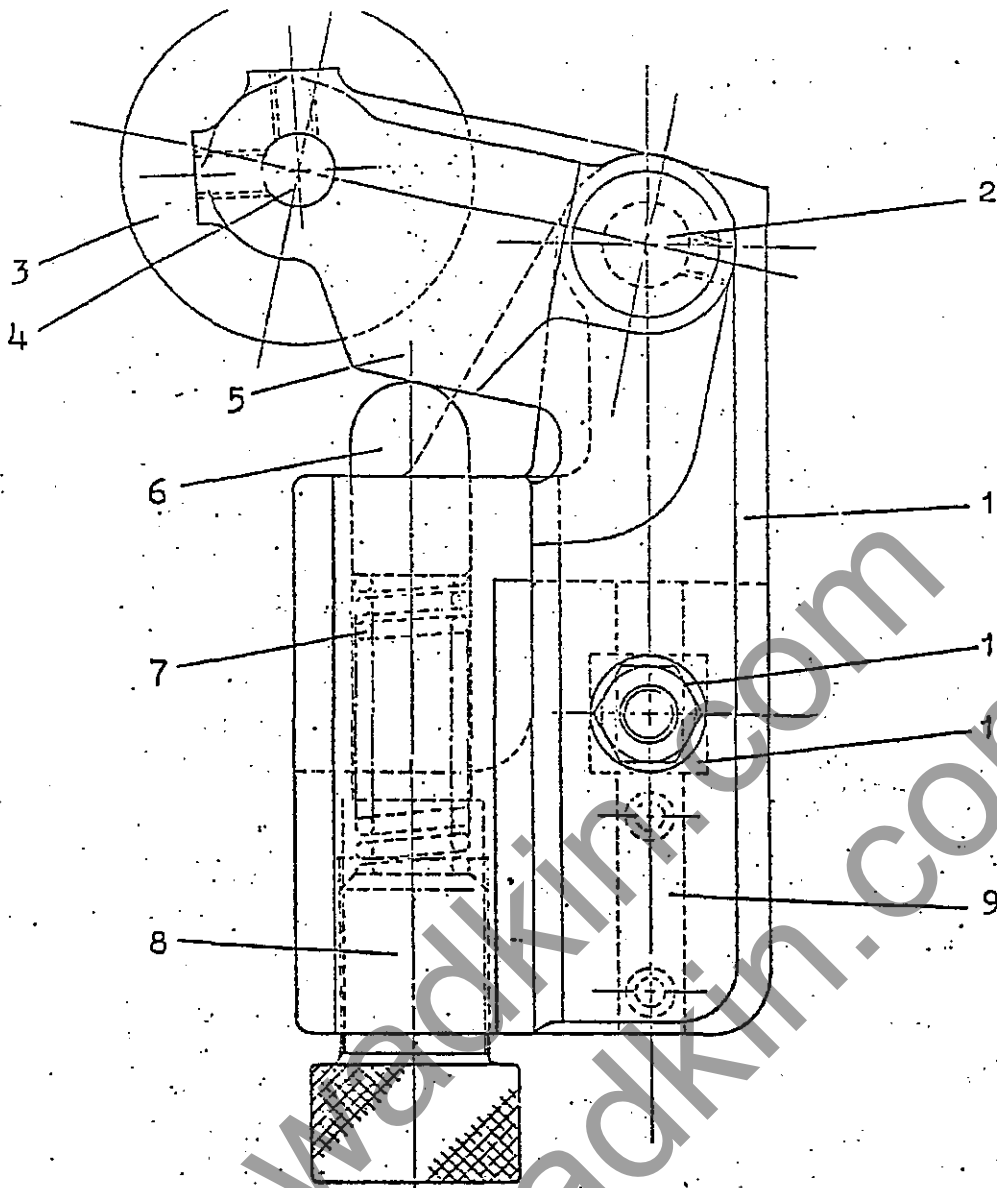
Item No.	Description	Part No.
01	Input Shaft on Gearbox	FD 13634
02	Spacing Collar	FD 13567
03	End Cap for Input Shaft	FD 13510
04	Bearing RMS 13	K0601779
05	Ball Bearing Locknut 5A	K0519175
06	Triple Gear	FD 13630
07	Spacing Collar	FD 13567
08	Bearing RMS 10	K0601758
09	Ball Bearing Locknut 3B	K0519168
10	End Cap for Gearbox	FD 13508
11	End Cap " "	FD 13508
12	Ball Bearing Locknut 3A	K0519167
13	Bearing RMS 10	K0601758
14	Shaft for Gearbox	FD 12481
15	Gear	FD 12484
16	Gear	FD 12483
17	Spacing Collar	FD 12487
18	Gear	FD 12476
19	Front Spacing Collar	FD 13568
20	Ball Bearing Locknut 3A	K0519167
21	Bearing RMS 10	K0601758
22	Ball Bearing Locknut 3A	K0519167
23	Bearing RMS 10	K0601758
24	Shaft for Gearbox	FD 13623
25	Front Spacing Collar	FD 13568
26	Double Gear	FD 13631
27	Gear	FD 12496
28	Spacing Collar	FD 13567
29	Ball Bearing Locknut 3B	K0519168
30	Oil Seal G300212	K 3073293
31	Bearing	K0601758
32	End Cover	FD
33	Bearing RMS 13	K0601779
34	Ball Bearing Locknut 6A	K0519179
35	Gearbox Shaft	FD 8858
36	Gear	FD 8846
37	Gear	FD 13560
38	Bearing RMS 12	K0601772
39	Ball Bearing Locknut 5B	K0519176
40	End Cover	FD 8835
41	End Cap	FD 8829
42	Output Shaft	FD8857
43	Oil Seal G250150	
44	End Cap	FD 8844
45	Ball Bearing Locknut 6A	K0519179
46	Bearing RMS 13	K0601779
47	Gear	FD 13561
48	Sleeve	FD 13571
49	Bearing SKF 6309	K0601366
50	Grease Retainer No.107	K0519417
51	Coupling for Gearbox	FD 8311
52	Pin for Coupling	FD8364
53	Main Drive Sprocket	FD8654
54	Driving Shaft (Btm.F/rolls)	FD7294
55	Spacing Collar	FD 8837
56	Top Feed Roller (Plain)	FD 8650

57	Phillidas Nut 1"	
58	Flat Washer	FD7243
59	Top Roll Shaft	FD 7320
60	End Cover	FD 7319
61	Bearing SKF 2309	K0602239
62	Swing for 1st.Top F/Roll	FD 10501
63	Swing for 2nd.Top F/Roll	FD 10502
64	Bearing Spacer	FD 7239
65	Grease Retainer No.77	K0519416
66	Gear for Top Roll Shaft	FD 7341
67	Ball Bearing Locknut 7A	K0519183
68	Driver/Sprocket Top Rolls	FD 7340A
69	Bearing RLS 13	K0601623
70	Grease Retainer No. 107	K0519417
71	Ball Bearing Locknut 6A	K0519179
72	Bearing Spacer	FD7259
73	Swing Shaft	FD 8667
74	Idler Sprocket Bracket	FD 8645
75	Idler Sprocket Pin	FD 8656
76	Idler Sprocket	FD 8657
77	Bush for Sprocket	FD 8660
78	Idler Sprocket Bracket	FD 8647
79	Pin for Tightener Sprocket	FD 7212
80	Tightener Sprocket	FD 7223
81	Bush for Sprocket	FD 7211
82	Ball Bearing Locknut 7B	K0519184
83	Driven Gear Btm.Rolls	FD 7292
84	Grease Retainer	K0519417
85	Front Btm.Roll Blocks	FD 8527
86	Bearing SKF 2309	K0602239
87	R & C Chain No. 110088 95p.	
88	Ball Bearing Locknut 10B	K0519196
89	Bottom Feed Roll (Fluted)	FD 7310
90		
91	Rear Btm. Roll Block	FD 8528
92	Bottom Roll Shaft	FD 7232
93	End Cap for Roll Block	FD 7135
94	Ball Bearing Locknut 7A	K0519183
95	Ball Bearing Locknut 7B	K0519184
96	Drive Gear Btm. Rolls	FD 7291
97	Bearing SKF 2309	K0602239
98	Eyebolt for Tightener Lever	FD 10761
99	Pivot Pin for Eyebolt	FD7208
100	Feedworks Housing	FD 7170
101	Sleeve for Housing	FD 7329
102	Ball Bearing Locknut 7A	K0519183
103	Pivot Pin for Lever	FD 7287
104	Tightener Sprocket Lever	FD 8652
105	Sprocket Pin	FD 7212
106	Tightener Sprocket	FD 7223
107	Bush for Sprocket	FD 7211
108	Bracket for Eyebolt	FD 7178



OUTBOARD BEARING ASSEMBLY

- | | |
|---------|---|
| FD8617 | OUTER END CAP |
| FD 8615 | END CAP |
| FD 8616 | OUTER SLEEVE |
| FD 8063 | OIL CUP |
| FD 8030 | FELT RING |
| FD 8631 | LOCKNUT FOR BRG. SLEEVE (TOP HEAD) |
| FD 8632 | LOCKNUT FOR BRG. SLEEVE (BTM.HEAD) |
| FD 8613 | BEARING SLEEVE (BTM.HEAD) |
| FD 8614 | BEARING SLEEVE (TOP HEAD) |
| No. 10C | RH.BALL BRG. LOCKNUT (TOP HEAD)K0519197 |
| No. 10D | LH.BALL BRG. LOCKNUT (BTM.HEAD)K0519198 |
| N 1071 | HOFFMAN BEARING K0601309 |

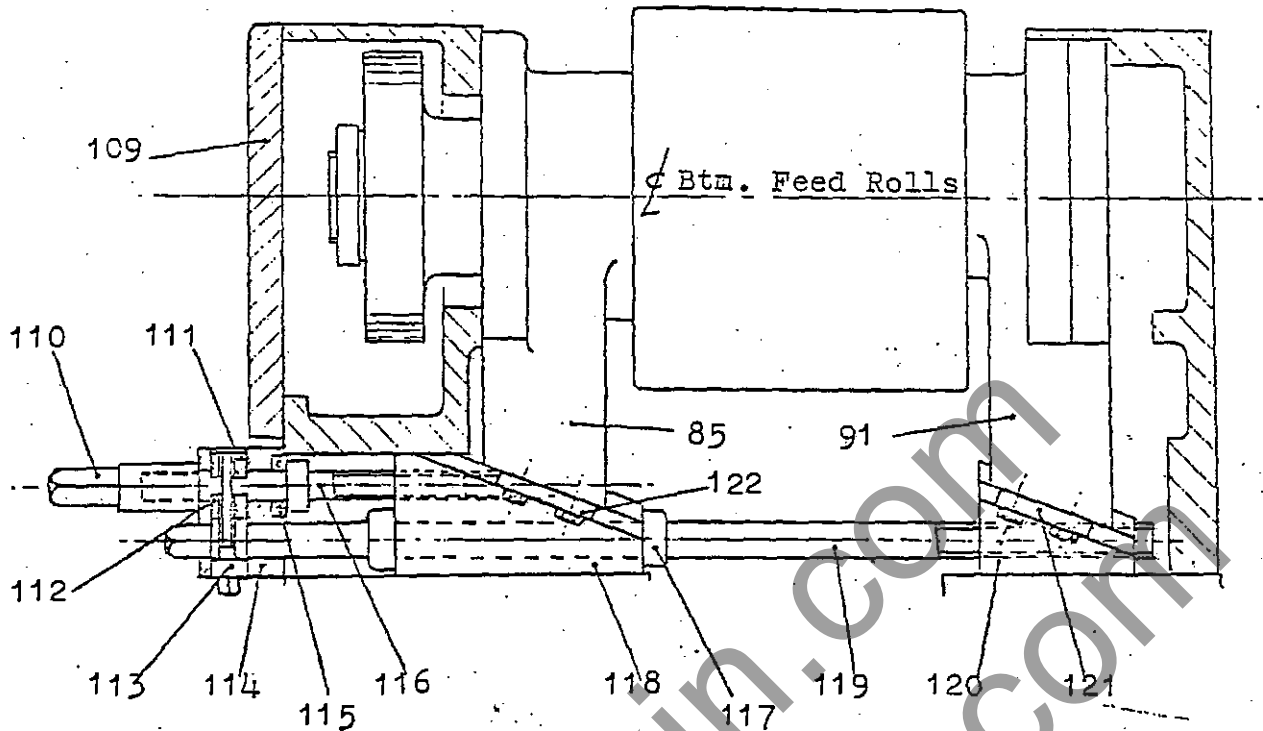


<u>ITEM No.</u>	<u>DESCRIPTION</u>	<u>PART No.</u>
1	SIDE PRESSURE BRACKET	FD 313
2	HINGE PIN	FD 366
3	PRESSURE ROLLER	FD 546
4	ROLLER PIN	FD 543
5	PRESSURE ARM	FD 314/A
6	SPRING PLUNGER	FD 459
7	SPRING	RJ 116
8	ADJUSTING SCREW	FD 458
9	CHECK STRIP	FD 188
10	LOCKING BOLT	FD189
11	1/2" w NUT AND WASHER	
12	ROLLER BEARING(not shown)	LJ17DD

SIDE PRESSURE ASSEMBLY
BEFORE AND AFTER BOTTOM FEEDROLLERS : 4" FD
BEFORE SIDE HEAD : 8" FD (85-86)

Balance Valve	S252	K30.61.166
3 Port Valve	S 442/2	K30.61.457
5 Port Valve	S 663/3	K30.61.489
3 Port Solenoid Valve	S 441/22	K30.61.454
Midget Poppet Valve Blue	AE 11376	K30.61.176
Midget Poppet Valve Yellow	AE 11375	K30.61.183
Booster Valve (Blue)	S256C/33	K30.61.175
Flow Regulator	S 839	K30.61.490
Shuttle Valve	S 575	K30.61.163
Cylinder 2½" x 3"	S 925/3D	K30.61.191
Lubrication Contral Unit complete. comprising of:-		K30.61.270
Automatic Drain Filter	F02 300 A3TB	K30.61.252
Regulator (with gauge)	20 AG 3GG	K30.61.253
Micro Fog Lubricator	30 41 3L	K30.61.254
Pressure Gauge	0-160 304m 160	K30.61.263

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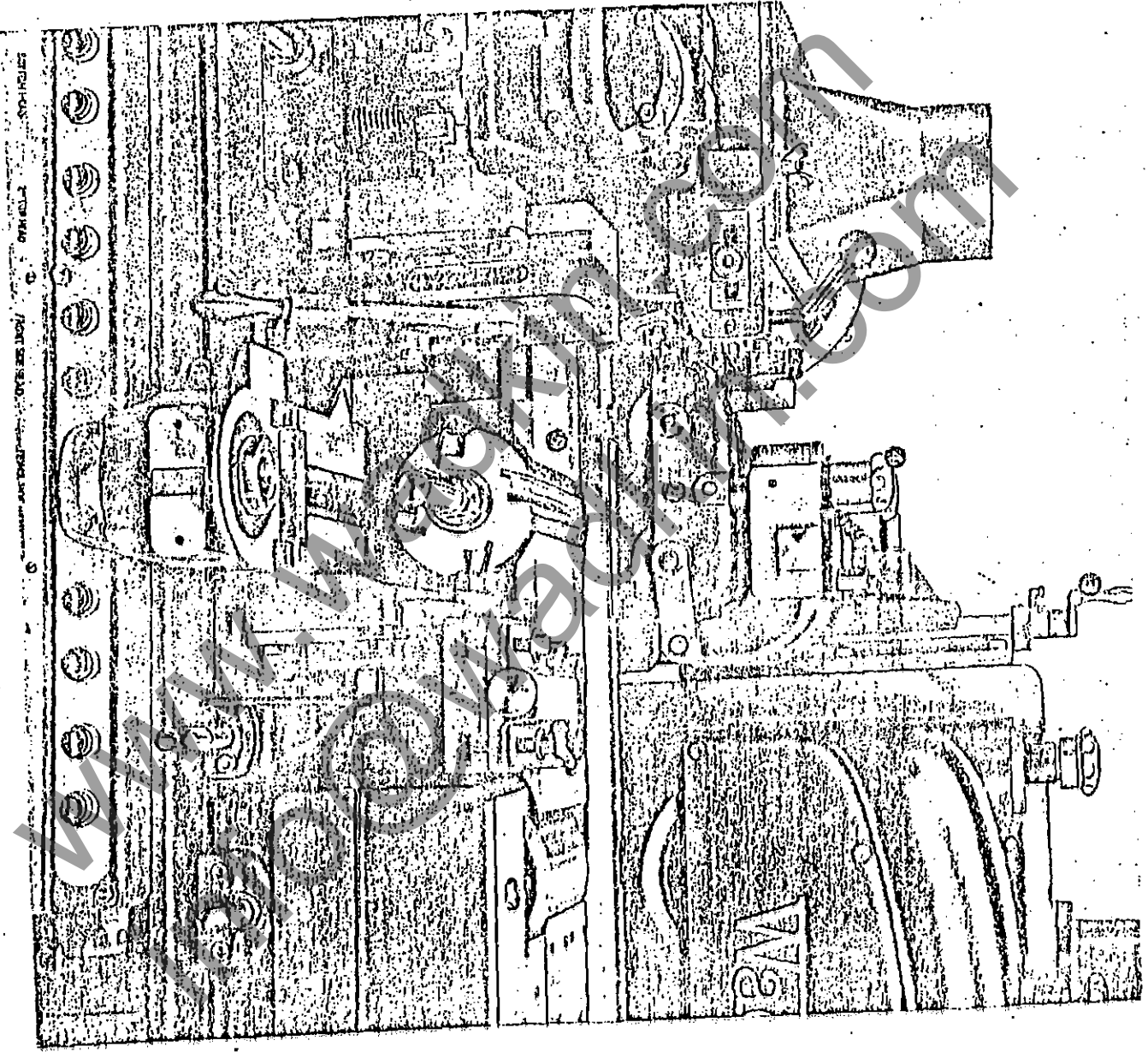


8"FD Adjustment of Bottom Feed Rolls

Item No.	Description	Part No.
109	Cover Plate for Front Housing	FD 10223
110	Square for Adjusting Screw	FD 7706
111	Locking Bush (Top)	FD 12689
112	Locking Bush (Btm.)	FD 12688
113	Locking Screw	FD 12690A
114	Gland Bracket	FD 12684
115	Thrust Bearing FT 5/8	K0604165
116	Adjusting Screw (Rise & Fall)	FD 12685
117	Loose Collar No.3	K0520103
118	Adjusting Wedge (Front)	FD 12213
119	Adjusting Screw (Pitch)	FD 8583A
120	Adjusting Wedge (Rear)	FD 8546
121	Front Retaining Plate	FD 12404
122	Front Retaining Plate	FD 12404

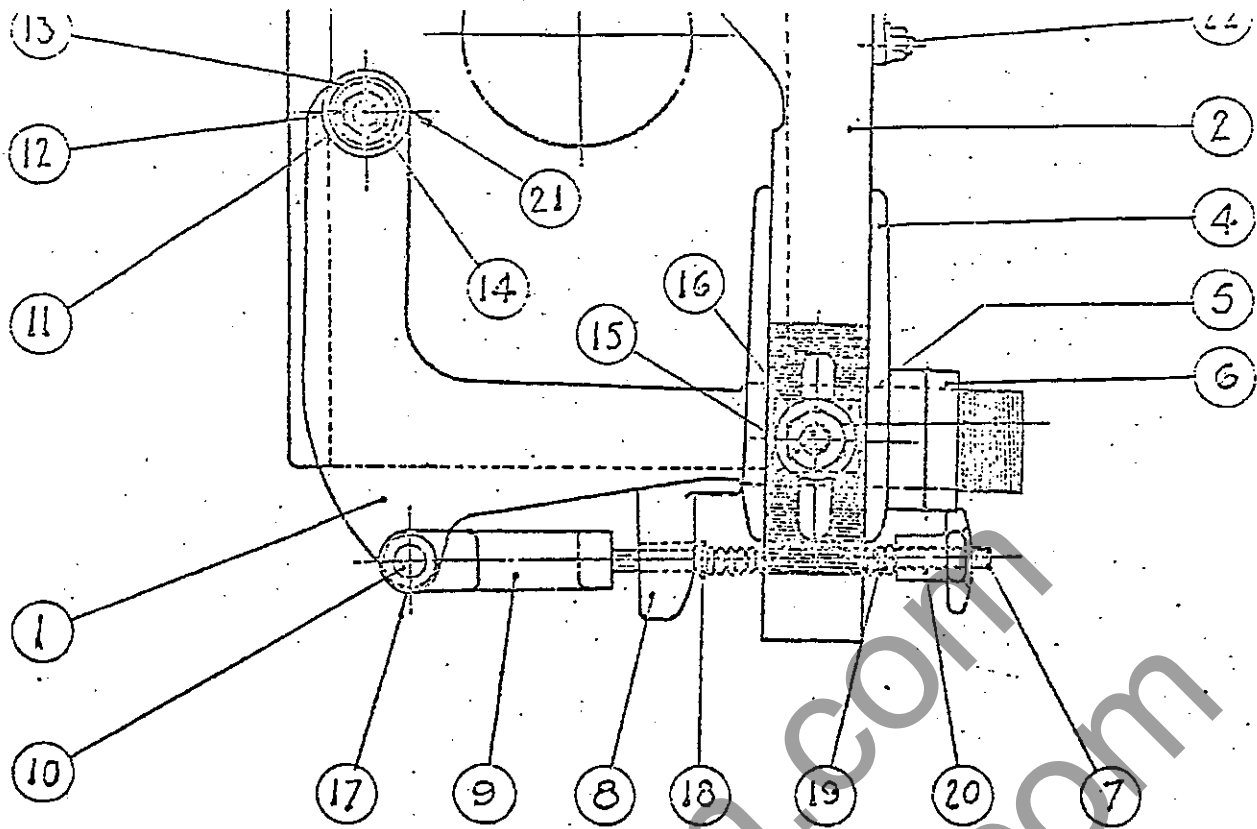
REMOVAL OF BOTTOM FEED ROLLERS ON 8"FD

1. Drain oil from Front Housing.
2. Remove Front Cover (Item 109).
3. Unscrew the two Socket Cap Screws (5/16") holding the Centre Plate between Feed Rolls to the Front Housing. This plate can be left secured to Rear Housing under the Fence.
4. Remove the four steel Strips retaining the Front Bearing Blocks (Item 85) in the Front Housing. Access to the eight 3/8"w Hexagon Head Screws is from inside the Front Housing.
5. Unscrew the two Socket Cap Screws from each of the Gland Brackets (Item 114) Wind out of engagement the top Adjusting Screw (Item 116). This allows the Gland Bracket to be removed completely.
6. Remove the Infeed Table.
7. Remove the Front Housing securing screws. (Seven 1/2"w Hexagon Screws, and two 3/8"diameter dowels.)
8. Unlock Retaining Nuts (items 82 and 95) from Feed Roll Shafts and Drive Shaft. Pull off Gears (Items 83 and 96) and take out Keys.
9. Slide off Front Housing. The Bearing (Item 97) on the Bottom Drive Shaft stays in the Front Housing.
10. Take off the Retaining Strips (Item 121, 1 per Wedge) from the Rear Wedges (Item 120).
11. The Front Bearing Blocks (Item 85) can now be removed complete with Front Wedge (Item 118) and Adjusting Screw (Item 119).
12. Unlock Feed Roller Locknut (item 88) and withdraw Feed Roller.
13. Re assemble in reverse order. Before the Front Cover is replaced operate the rise and fall mechanism to ensure that the Front Bearing Blocks are sliding freely in the Front Housing.
14. Re fill with oil.



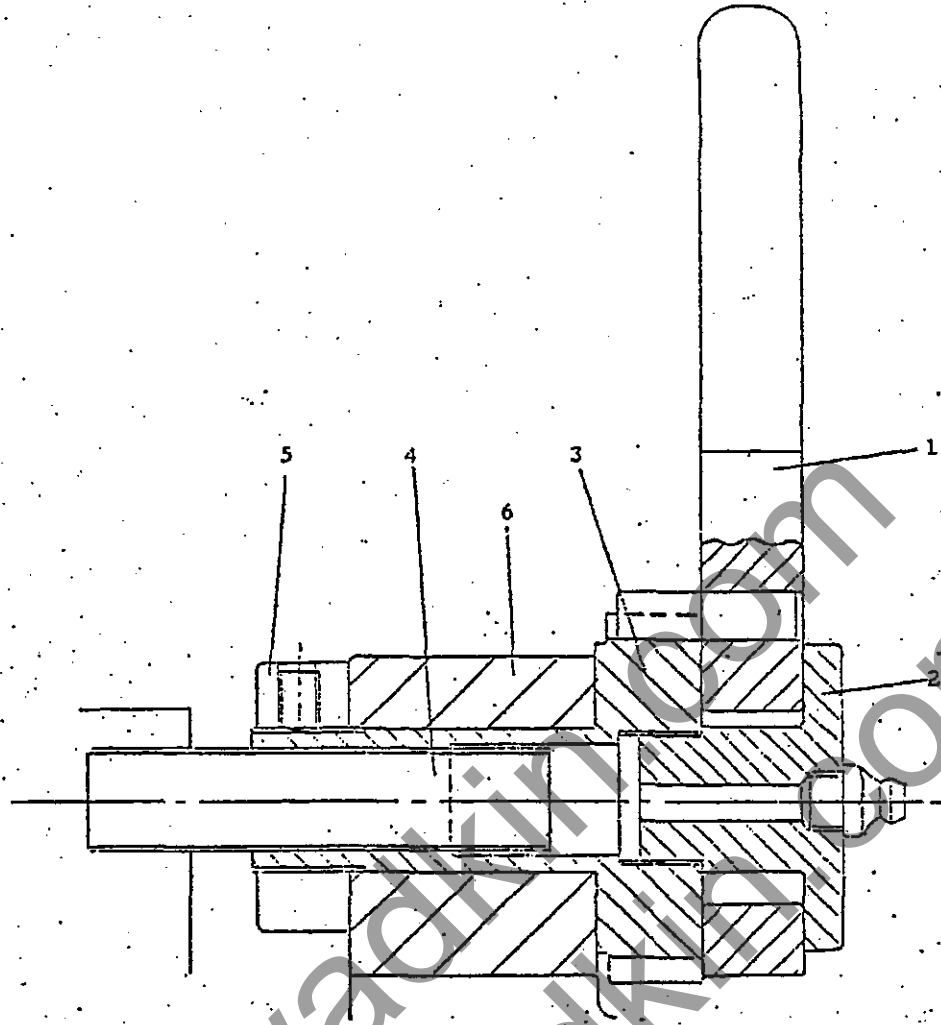
8" FD

1ST BTM HEAD AND ASSOCIATED PARTS



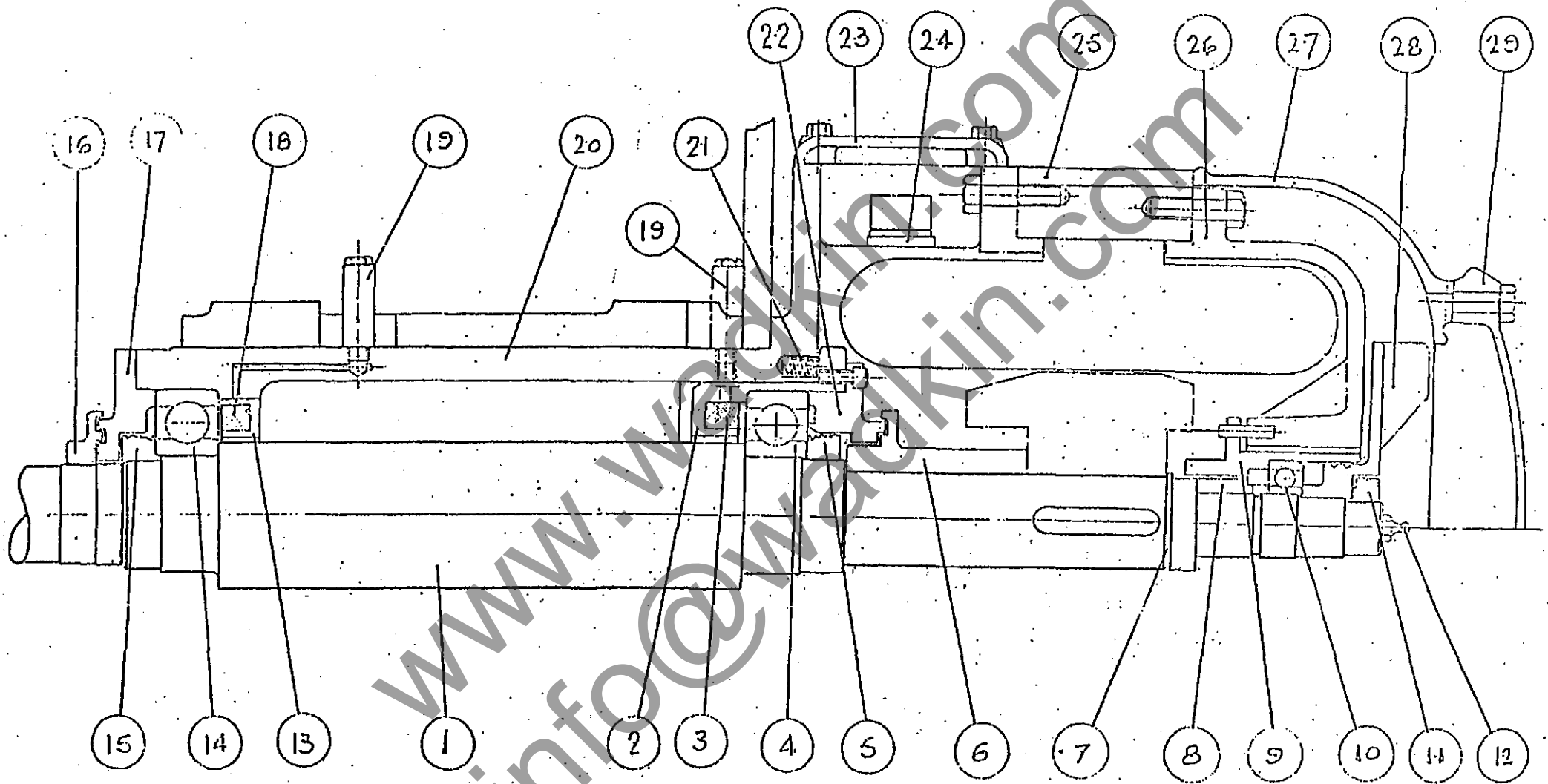
8"FD SIDE HEAD CHIPBREAKER ASSEMBLY

1.	PIVOT ARM	FD 7624/A
2.	CHIPBREAKER SHOE	FD 7625
3.	PLATE FOR SHOE	FD 7729
4.	SLIDE BLOCK	FD 7626/A
5.	SERRATED PLATE	FD 7761
6.	SERRATED PLATE	FD 7760
7.	SPRING ROD	FD 7755
8.	BRACKET FOR SPRING TENSION	FD 7634
9.	BRACKET FOR SPRING ROD	FD 8686
10.	PIVOT PIN FOR ARM	FD 7756
11.	PIVOT PIN	FD 7719
12.	WASHER FOR PIVOT PIN	FD 7721
13.	BUSH FOR PIVOT PIN	FD 7720
14.	HEXAGON NUT	K05.10.109
15.	HEXAGON NUT	K05.10.110
16.	LOCKING BOLT	FD 7722
17.	HEX HOLE GRUBSCREW $\frac{1}{8}$ GAS x $\frac{1}{2}$	
18.	WASHER FOR SPRING	DR 267
19.	TENSION SPRING	FD 7733
20.	STA HANDWHEEL	K05.21.446
21.	HEX HOLE GRUBSCREW $\frac{1}{8}$ " GAS x $\frac{3}{4}$	
22.	STUD $\frac{1}{2}$ " W x $1\frac{3}{4}$ LG	K05.09.472



HEAD ADJUSTING MECHANISM

<u>ITEM No.</u>	<u>DESCRIPTION</u>	<u>PART No.</u>
1	RATCHET LEVER	FD 418
2	PIN	FD 453
3	SLEEVE	FD 451
4	ADJUSTING SCREW	FD 454
5	LOCKING COLLAR	FD 452
6	BRACKET (SIDE HEADS ONLY)	FD 408



8" FD Horizontal Spindle

8" FD HORIZONTAL SPINDLES 1.13/16 dia

<u>ITEM No.</u>	<u>DESCRIPTION</u>	<u>PART No.</u>
1	Horizontal Spindle (Top Head)	FD 8050
1	Horizontal Spindle (Bottom Head)	FD 8040
2	Bearing Housing	FD 9892
3	Lubrication Pad	FD 9895
4	Hoffman Bearing N1074	K0601444
5	Bearing Locknut (Top Head)	FC 3520
5	Bearing Locknut (Bottom Head)	FC 3521
6	Labyrinth for Bearing	FD 13352
7	Enternal Circlips 1 $\frac{3}{4}$ dia	K3009188
8	Spacing Collar	FD 9900
9	Spacing Sleeve	FD 9894
10	SKF Bearing 402353	K0601774
11	Locknut 1C-Bottom	K0519161
11	Locknut 1D-Top	K0519162
12	Grease Nipple	K0950104
13	Lubrication Ring	FD 9881
14	Hoffman Bearing N1074	K0601444
15	Bearing Locknut (Top Head)	FC 3503
15	Bearing Locknut (Bottom Head)	FC 3504
16	Dust Cover	FC 3508
17	Bearing Cap	FD 8022
18	Felt Ring	FD 9882
19	Extension for Oil Nipple	FD 13388
20	Spindle Barrel	FD 9898
21	Spring	FD 9872
22	Bearing Cap	FD 9893
23	Cover for Terminal Block	FD 8609
24	Terminal Box	
25	Stator Frame	FD 8601
26	Tail Bearing Housing	FD 9891
27	Fan Cover	FD 8603
28	Rotor Fan	FD 13302
29	Fan Cowl	FD 8097

BED PLATES 8" AND 9" FD

MODEL 81

BED PLATE BEFORE FIRST BOTTOM HEAD	FD 11006
BED PLATE AFTER FIRST BOTTOM HEAD	FD 10660
BED PLATE FOR FENCE SIDE HEAD	FD 11010
BED PLATE FOR FRONT SIDE HEAD	FD 11010
BED PLATE BEFORE TOP HEAD	FD 11008
BED PLATE UNDER TOP HEAD	FD 7971 (PERMALI)
BED PLATE AFTER TOP HEAD	FD 11007

MODEL 82

BED PLATE BEFORE FIRST BOTTOM HEAD	FD 11007
BED PLATE AFTER FIRST BOTTOM HEAD	FD 10660
BED PLATE FOR FENCE SIDE HEAD	FD 11010
BED PLATE FOR FRONT SIDE HEAD	FD 11010
BED PLATE BEFORE TOP HEAD	FD 11008
BED PLATE UNDER SECOND TOP HEAD	FD 7971 (PERMALI)
BED PLATE AFTER TOP HEAD	FD 11007

BED PLATES 8" AND 9" FD

MODEL 85

BED PLATE BEFORE FIRST BOTTOM HEAD	FD 11006
BED PLATE AFTER FIRST BOTTOM HEAD	FD 11007
BED PLATE UNDER FIRST TOP HEAD	FD 11009
BED PLATE FOR FENCE SIDE HEAD	FD 11010
BED PLATE FOR FRONT SIDE HEAD	FD 11010
BED PLATE BEFORE SECOND TOP HEAD	FD 11008
BED PLATE UNDER SECOND TOP HEAD	FD 7971 (PERMALI)
BED PLATE AFTER SECOND TOP HEAD	FD 11006

MODEL 86

BED PLATE BEFORE FIRST BOTTOM HEAD	FD 11006
BED PLATE AFTER FIRST BOTTOM HEAD	FD 11007
BED PLATE UNDER FIRST TOP HEAD	FD 11009
BED PLATE FOR FENCE SIDE HEAD	FD 11010
BED PLATE FOR FRONT SIDE HEAD	FD 11010
BED PLATE BEFORE SECOND TOP HEAD	FD 11008
BED PLATE UNDER SECOND TOP HEAD	FD 7971 (PERMALI)
BED PLATE AFTER SECOND TOP HEAD	FD 11007

FENCES 8" AND 9" FD

MODEL 85

INFEEED FENCE	FD 7042
FENCE OVER FEED ROLLS	FD 8648
FENCE BEFORE SIDE HEAD	FD 8618
FENCE SHOE BEFORE SIDE HEAD	FD 7751/A
FENCE SHOE AFTER SIDE HEAD	FD 7750/A
FENCE AFTER SIDE HEAD	FD 7632

MODEL 86

INFEEED FENCE	FD 7042
FENCE OVER FEED ROLLS	FD 8643
FENCE BEFORE SIDE HEAD	FD 8618
FENCE SHOE BEFORE SIDE HEAD	FD 7751/A
FENCE SHOE AFTER SIDE HEAD	FD 7750/A
FENCE AFTER SIDE HEAD	FD 7632
FENCE FOR OUT FEED TABLE	FC 1066