INSTRUCTION AND PARTS MANUAL

FOR

GEM 170

THROUGH FEED STRAIGHTENING MOULDER

INSTRUCTION MANUAL NO : 1219

WADKIN GEM 170
THROUGH FEED STRAIGHTENING MOULDER

INSTRUCTION BOOK MANUAL 1219

SAFETY RULES

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

CAREFULLY READ INSTRUCTION MANUAL BEFORE OPERATING MACHINE.

DO NOT OPERATE WITHOUT ALL GUARDS AND COVERS IN POSITION.

BE SURE MACHINE IS ELECTRICALLY EARTHED - GROUNDED

REMOVE OR FASTEN LOOSE ARTICLES OF CLOTHING SUCH AS NECKTIES ETC. CONFINE LONG HAIR.

REMOVE JEWELLERY SUCH AS FINGER RINGS WATCHES, BRACELETS ETC.

USE SAFETY FACE SHIELD, GOGGLES OR GLASSES TO PROTECT EYES AND OTHER PERSONAL SAFETY EQUIPMENT AS REQUIRED.

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

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

CUSTOMERS ARE STRONGLY ADVISED TO USE AT ALL TIMES HIGH TENSILE STRENGTH CUTTER BLOCK BOLTS WHICH SHOULD BE TENSIONED BY MEANS OF A TORQUE SPANNER SET AT 21 MKG. - METRES KILOGRAMMES - 150 LBS. FT.

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

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

IMPORTANT

It is our policy and that of our suppliers to review constantly the design and capacity of our products.

With this in mind we would remind our customers that whilst the dimensions and performance data contained herein are current at the time of going to press, it is possible that, due to the incorporation of latest developments to enhance performance, dimensions and supplies may vary from those illustrated.

www.DaltonsWadkin.com

ATTENTION
THIS MACHINE CAN BE DANGEROUS
IF IMPROPERLY USED

Always use guards

Keep clear until rotation has ceased

Always operate as instructed and in accordance with good practice.

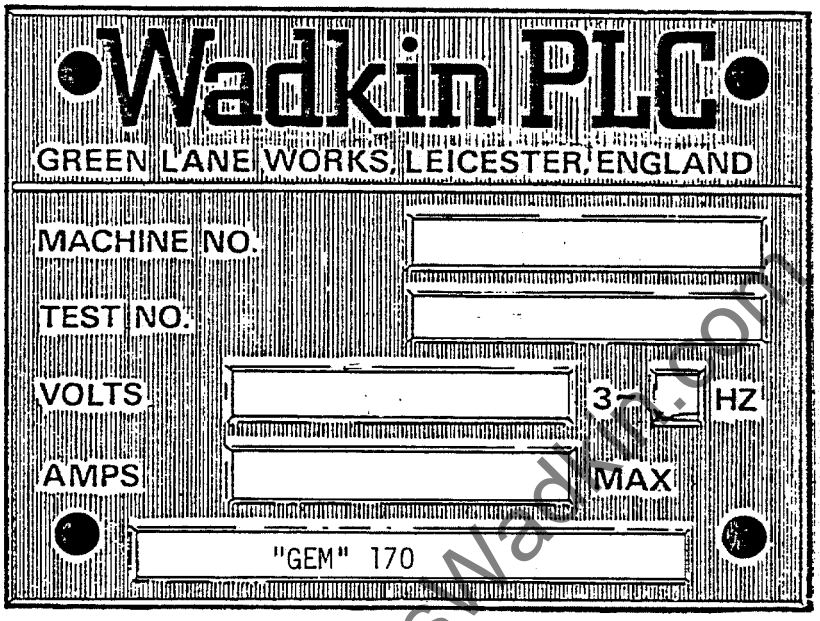
READ THE INSTRUCTION MANUAL

It is recommended that all personnel involved with the machine are acquainted with the Woodworking Machines Regulations, 1974 and also Booklet No. 41 'Safety in the Use of Woodworking Machines' the latter is issued by the Department of Employment and available from Her Majesty's Stationery Office.

ALWAYS QUOTE MODEL AND MACHINE NUMBER WHEN ORDERING SPARES

SPARE PARTS

SHOULD SPARE PARTS BE REQUIRED DUE TO BREAKAGE OR WEAR, FULL PARTICULARS INCLUDING MACHINE AND TEST NUMBER MUST BE GIVEN, THIS INFORMATION IS ON THE NAMEPLATE ATTACHED TO THE FRONT OF THE MACHINE AND SHOULD BE FORWARDED TO THE SERVICE MANAGER.



SAMPLE TYPE ORDER

MACHINE
MACHINE NO:
TEST NO:
PARTS REQUIRED

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

Wadkin PLC., Green Lane Works. Leicester LE5 4PF Telephone: 0533 769111
Cables: Woodworker Leicester
Telex: 34646 (Wadkin Leicester)

IMPORTANT

WHEN ORDERING TIMING BELTS ALWAYS SPECIFY 'NEUTRALLY CORDED' BELTS.

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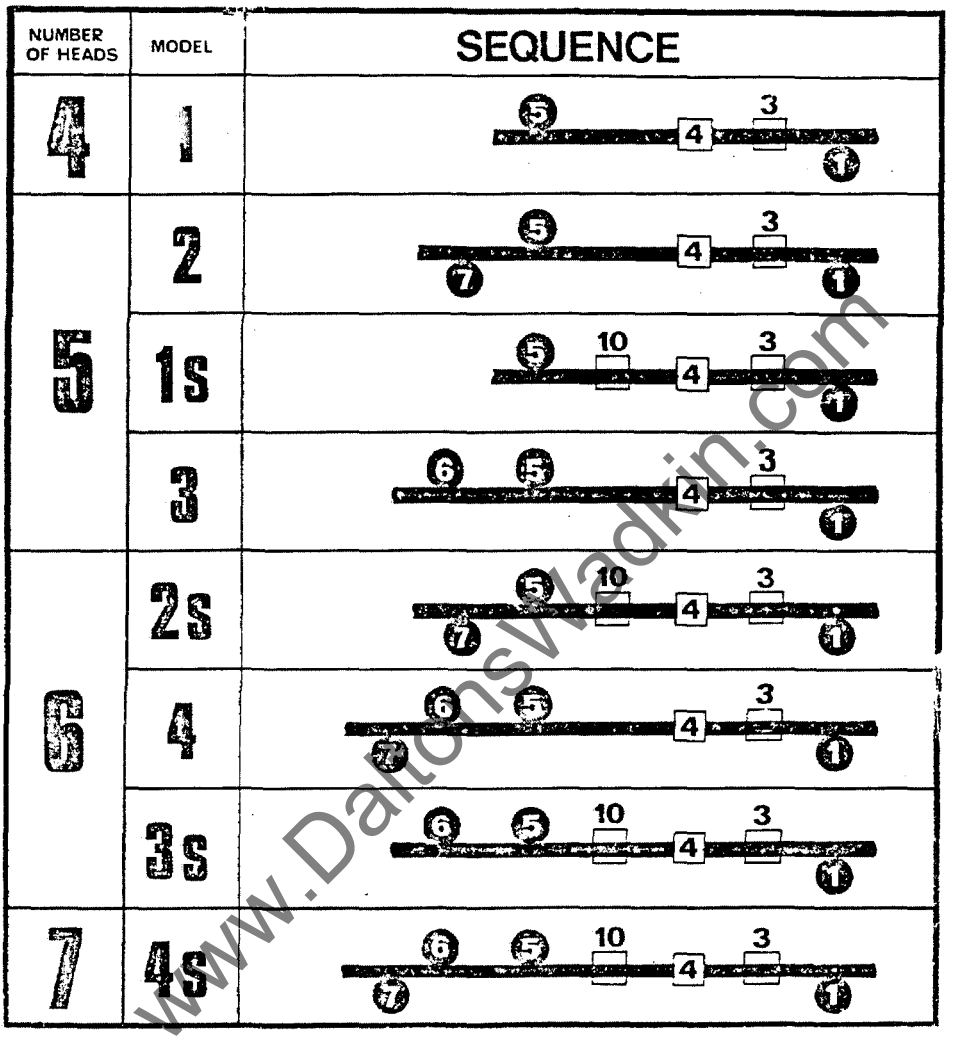
WADKIN GEM 170

The GEM 170 is suitable for straightening in two planes at right angles; the process is performed on the underside of the timber by passing it over the first bottom cutter head, the long infeed table generating the straight line. At the same time the straight rear edge by the long infeed fence which extends to the first fence side head. Thus the timber is located from these two straight faces for any subsequent machining.

HEAD ARRANGEMENTS



MODEL 1
Four heads; bottom, fence side, near side and top.

MODEL 2
Five head; bottom, fence side, near side, top and second bottom.

MODEL 1S
Five heads; bottom, fence side, near side, second fence side and top

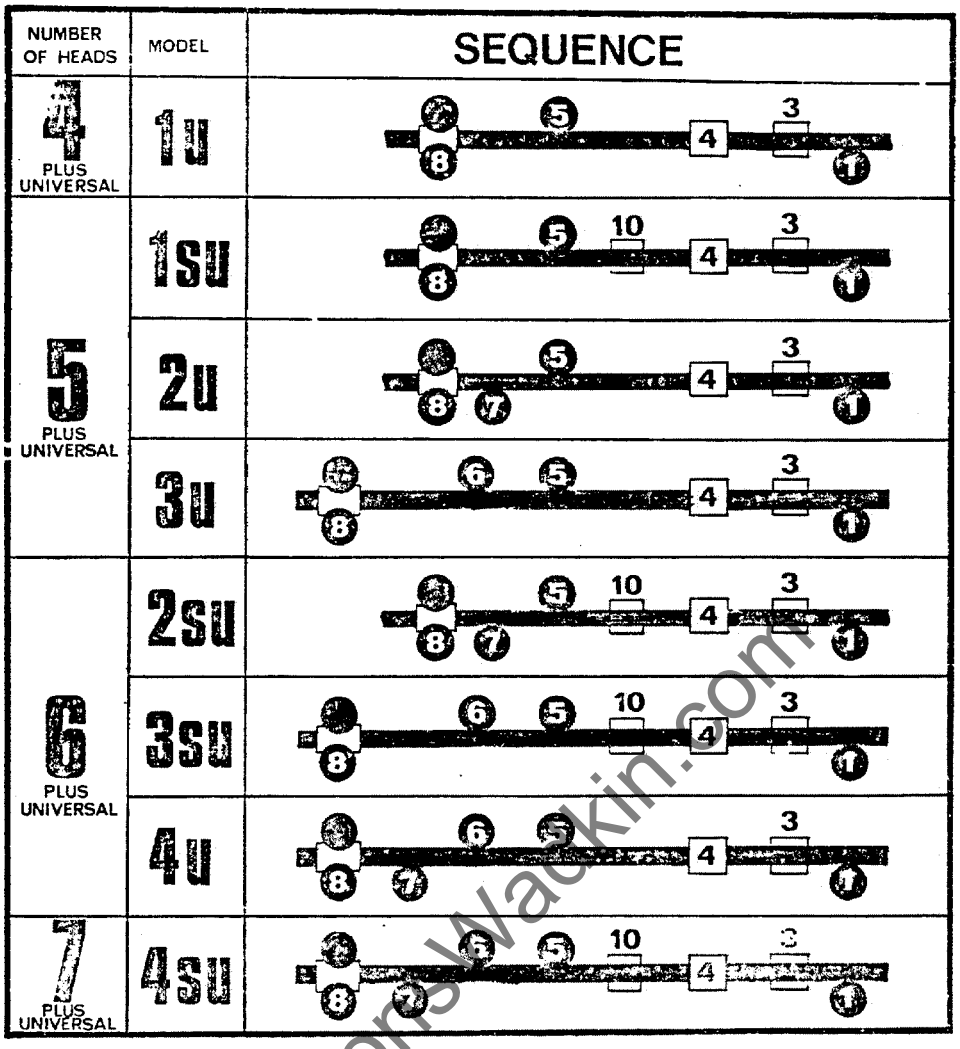
MODEL 3
Five heads; bottom, fence side, near side, top and second top.

MODEL 2S
Six heads; bottom, fence side, near side, second fence side, top and second bottom.

MODEL 4
Six heads; bottom, fence side, near side, top, second top and second bottom.

MODEL 3S
Six heads, bottom, fence side, near side, second fence side, top and second top.

MODEL 4S
Seven heads; bottom, fence side, near side, second fence side, top, second top and second bottom.



MODEL 1U
Five heads; bottom, fence side, near side, top and universal

MODEL 1SU
Six heads; bottom, fence side, near side, second fence side, top and universal.

MODEL 2U
Six heads; bottom fence side, near side, top second bottom and universal.

MODEL 3U
Six heads; bottom, fence side, near side, top, second top and universal.

MODEL 2SU
Seven heads; bottom, fence side, near side, second fence side, top, second bottom and universal.

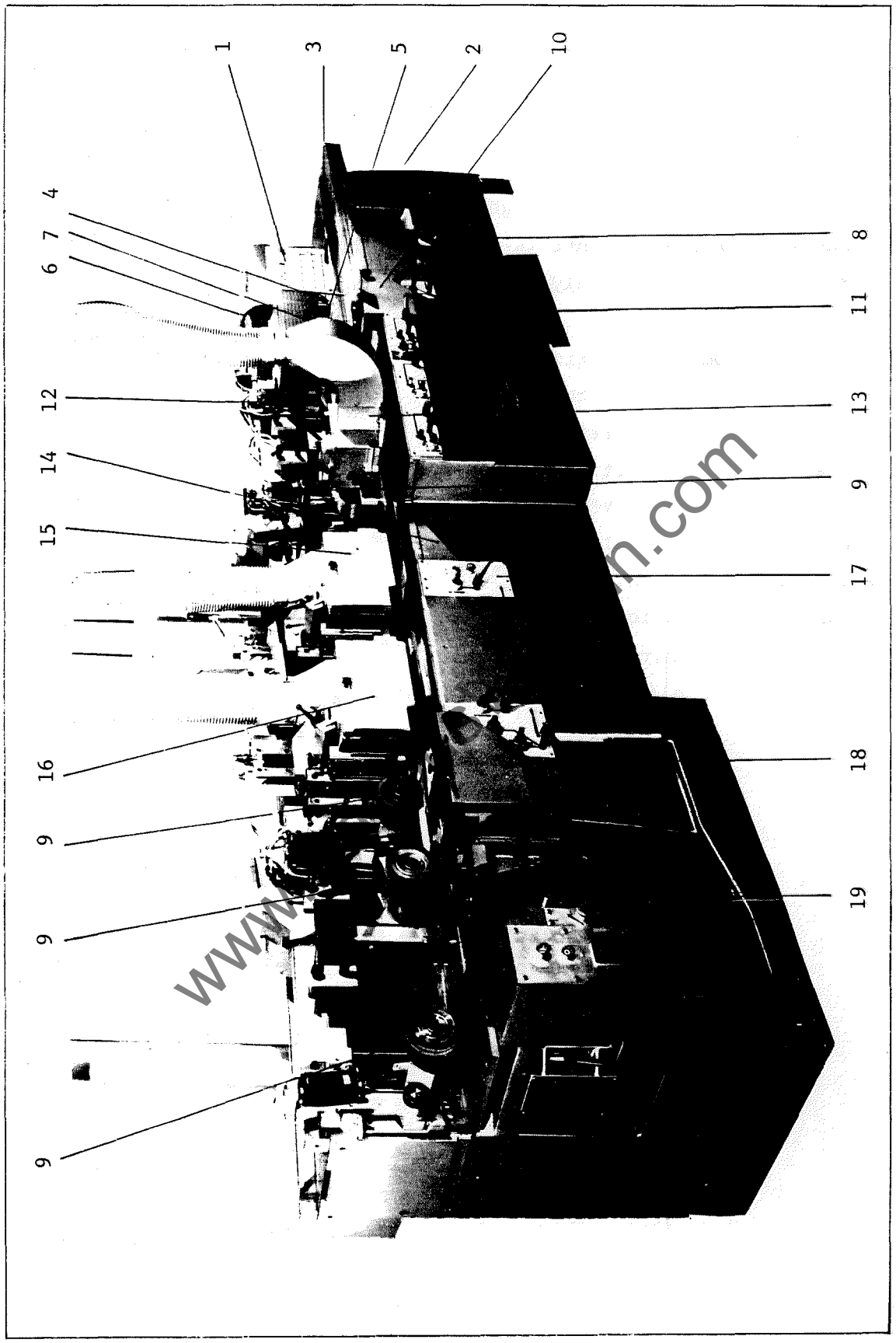
MODEL 3SU
Seven heads; bottom, fence side, near side, second fence side, top, second top and universal.

MODEL 4U
Seven heads; bottom, fence side, near side, top, second top, second bottom and universal.

MODEL 4SU
Eight heads; bottom, fence side, near side, second fence side, top, second top, second bottom and universal.

PRINCIPAL DIMENSIONS AND CAPACITIES.

Maximum size of timber admitted	185 x 135mm (7.28 x 5.31 in.)
Maximum width of Finished Timber	170mm (6.69 ins.)
Maximum Thickness of Finished Timber	120mm (4.72 ins.)
Minimum width of Finished Timber	19mm (0.75 in.)
Acceptable rough stock thickness variation	15mm (0.59in.s)
Shortest Piece to feed through machine	600mm (23.62 ins.)
Infeed table length	2m (optional 2.5m)
	78 in. (optional 98 in.)
Output power of feed motor	2.2 kW (3 hp)
Feed speeds infinitely variable in range	6 to 43 m/min.(20 to 140 ft/min.)
Feed roll diameter	140mm (5.5 in.)
Speed of cutter spindles	6000 or 7500 rev/min.
Output power of cutter spindle motors:	
Standard	3.7 kW (5 hp)
Optional	7.5 kW (10 hp)
Except first bottom, universal and through top/bottom heads	11 kW (15 hp)
Spindle diameters all heads	40mm
Maximum horizontal adjustment of top and bottom heads	25mm (1 in.)
Maximum vertical adjustment of fence side heads	40mm (1.57 in.)
Maximum vertical adjustment of near side head (drive belt removed)	180mm (7.08 in.)
Cutting circles: Straightening head, standard planing block	150mm (6in.)
All other heads:Minimum basic diameter	90mm (3.5in.)
Maximum basic diameter	150mm (6in.)
Maximum swing vertical heads	200mm (7.87 in.)
Maximum swing top and second top heads	200mm (7.87 in.)
Maximum swing second bottom and universal heads.	250mm (9.8 in.)
Bed height	850mm (33.5 in.)
Overall height	1600mm (63 in.)
Floor area (Model 4SU)	5700 x 1400 mm (224 x 55 in.)
Net weight	3900 kg. (8600 lb.)
Gross weight	4660 kg (10300 lb.)
Shipping dimensions (Model 4SU)	12.8 m^3 (460 $ft.^3$)



WADKIN STRAIGHTENING MOULDER GEM 170

WADKIN STRAIGHTENING MOULDER GEM 170

1. Electrical Controls.
2. Lever for adjusting the height of the Infeed Table.
3. Adjustable Infeed Fence.
4. Infeed Fence Adjusting Lever.
5. Infeed Fence Lock.
6. Handwheel for Adjusting Height of Feed Rolls.
7. Pneumatic Pressure Controls for Feed Rolls.
8. Handwheel for Infinitely Variable Feed Speed Adjustment.
9. Feed Rolls.
10. First Bottom Head (Horizontal).
11. Hand Operated Lubricator Pump.
12. First Fence Side Vertical Head.
13. Near Side Head (Vertical).
14. Second Fence Side (Vertical) Head.
15. First Top Horizontal Head.
16. Second Top Horizontal
17. Push Button Station duplicating the controls for the feed motor drive.
18. Second Bottom Horizontal Head.
19. Universal Head (Bottom Horizontal Position)

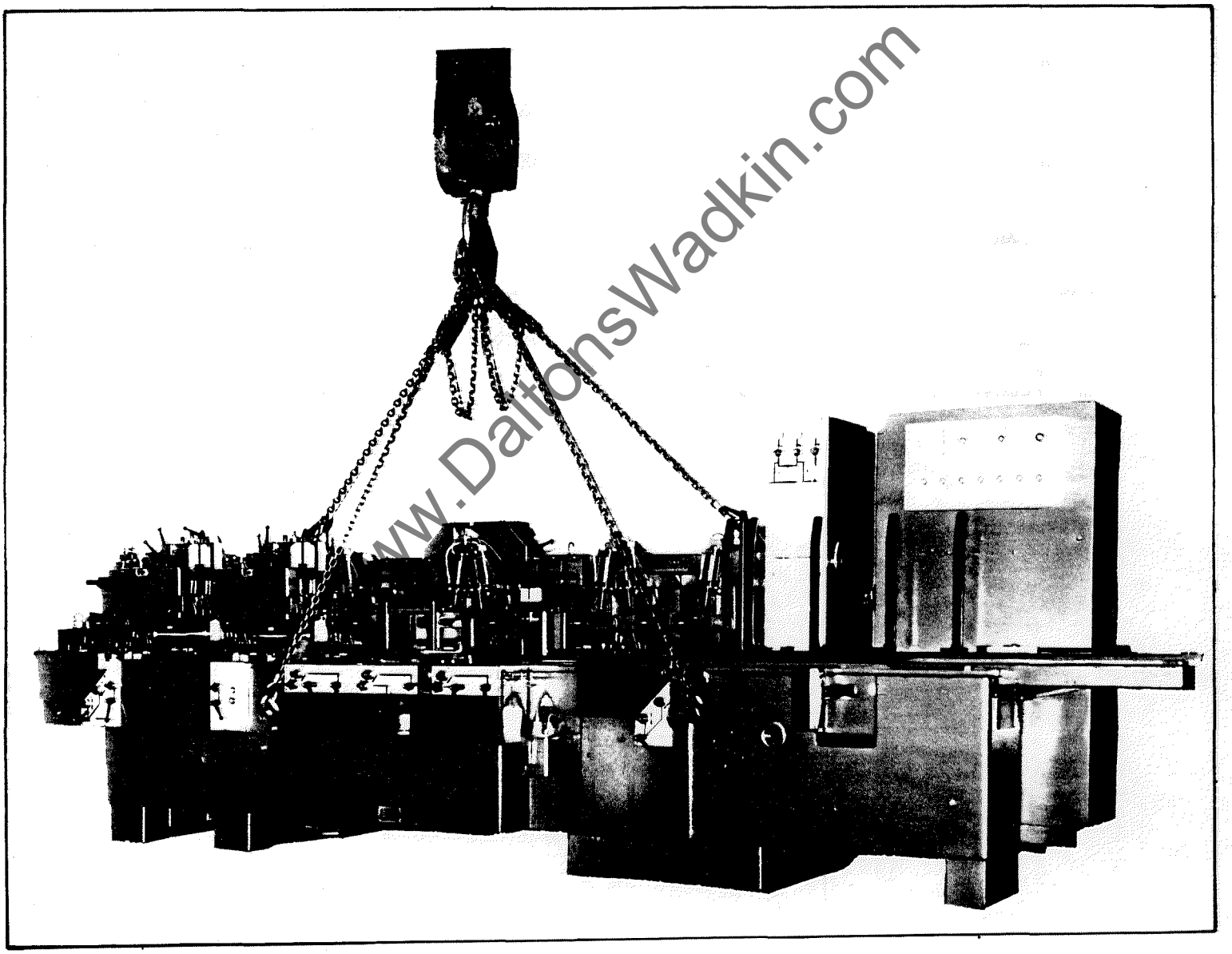
LIFTING THE MACHINE

Lifting facilities consisting of two eyebolts at the rear and two lifting irons at the front are provided with the machine. It is very important to ensure that the lifting slings are suitable arranged to enable the machine to be lifted so that the body is parallel to the floor prior to its siting.

19mm (.75in.) dia. bolts (not supplied) should be used to bolt the machine to the floor, refer to the foundation plan for bolt positions.

If the floor consists of 150mm (6in.) solid concrete no special foundation is necessary. Rag type holding down bolts may be used, 150-200mm (6-8ins.) square holes should be cut in the concrete for these bolts. After the machine has been carefully levelled employing the screws and levelling plates GEM 4198*. - the bed should be within .050mm (0.002 in.) of the length and width, it should be grouted in. After which the lifting eye-bolts should be removed from the machine each being held in position by a 27mm (1.0625 in.) hexagon head nut.

* Supplied to special order only



ELECTRICAL DETAILS

The Electrical Cabling between all the cutter motors and the attendant control gear have been carried out by Wadkin prior to despatch. It will only be necessary to connect the power supply to the incoming terminals L1, L2 and L3 at the disconnect switch at the electrical control console.

ENSURE THAT THE MACHINE IS CONNECTED SOLIDLY TO GROUND

1. Check that the electrical supply details on the machine nameplate correspond to the electrical supply available and select the size of the main cable to correspond as near as possible to the current indicated on the machine nameplate.

2. Check that the fuses at the electrical supply distribution board are correct.

3. Check that all connections are sound.

4. If the direction of the feed is reversed change over any two connections on the Incoming supply.

Section 9 - FOR THE ELECTRICAL CONNECTION DIAGRAM

PNEUMATICS. THE INPUT AIR PRESSURE SHOULD BE SET AT 5KG/CM^2 (80 lbs./in.^{2}) GAUGE

DUST EXHAUST SYSTEM

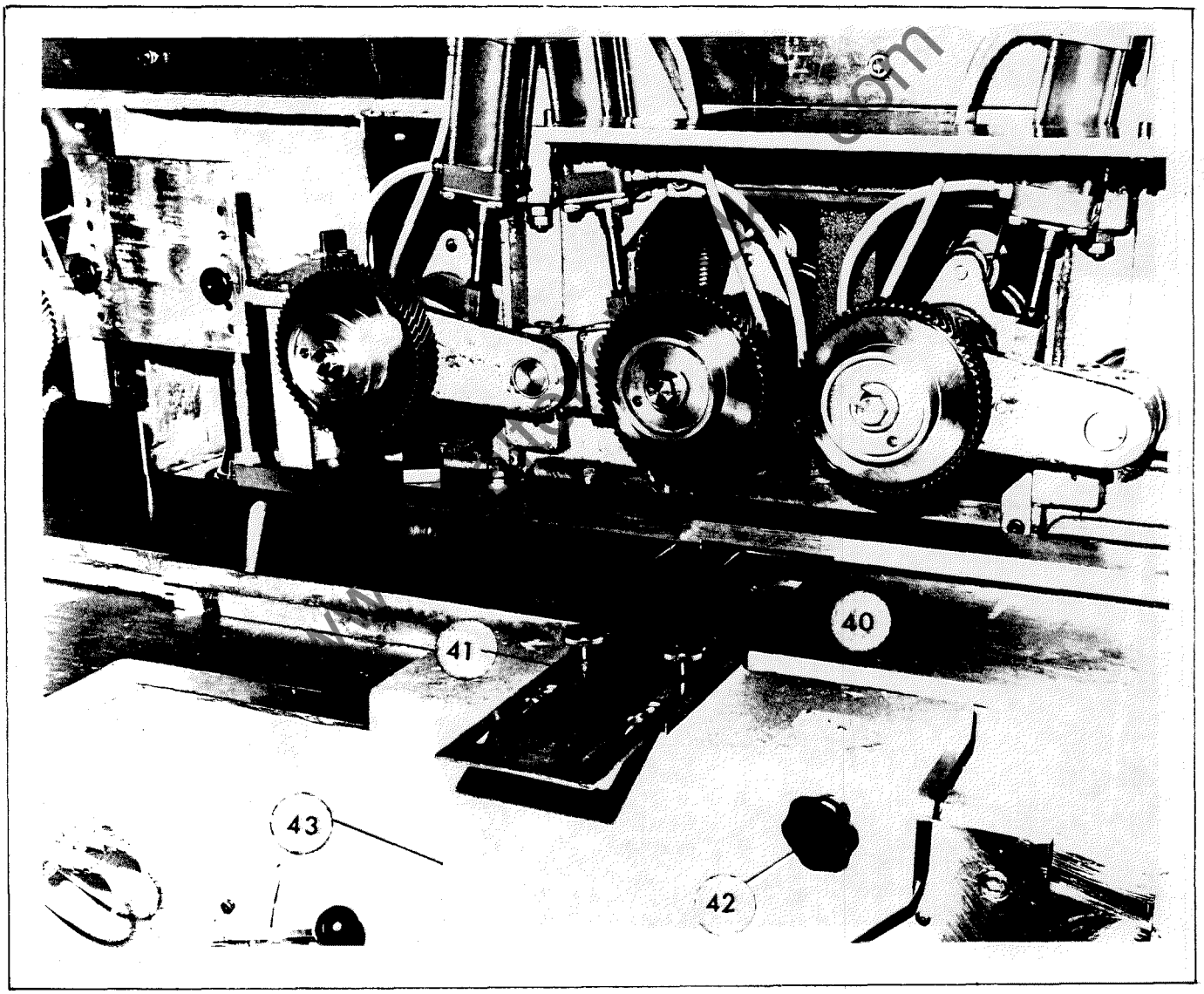
Wadkin have developed with Messrs. Dustraction Ltd. of Leicester, an exhaust collector unit for this machine. The pipes are flexible to facilitate the removal of the dust hoods. However it is pointed out that all heads (with the exception of the Universal) are fully accessible thus obviating the need for the removal of the Dust Hoods.

ADJUSTMENTS

FIRST BOTTOM HEAD

Access to the cutter spindle is made by releasing the cutter guard securing handles (40) and sliding the cutter guard (41) out of position. In addition handle (42) should be unfastened and door (43) opened.

SHOWING CUTTER GUARD IN SITU AND DOOR CLOSED

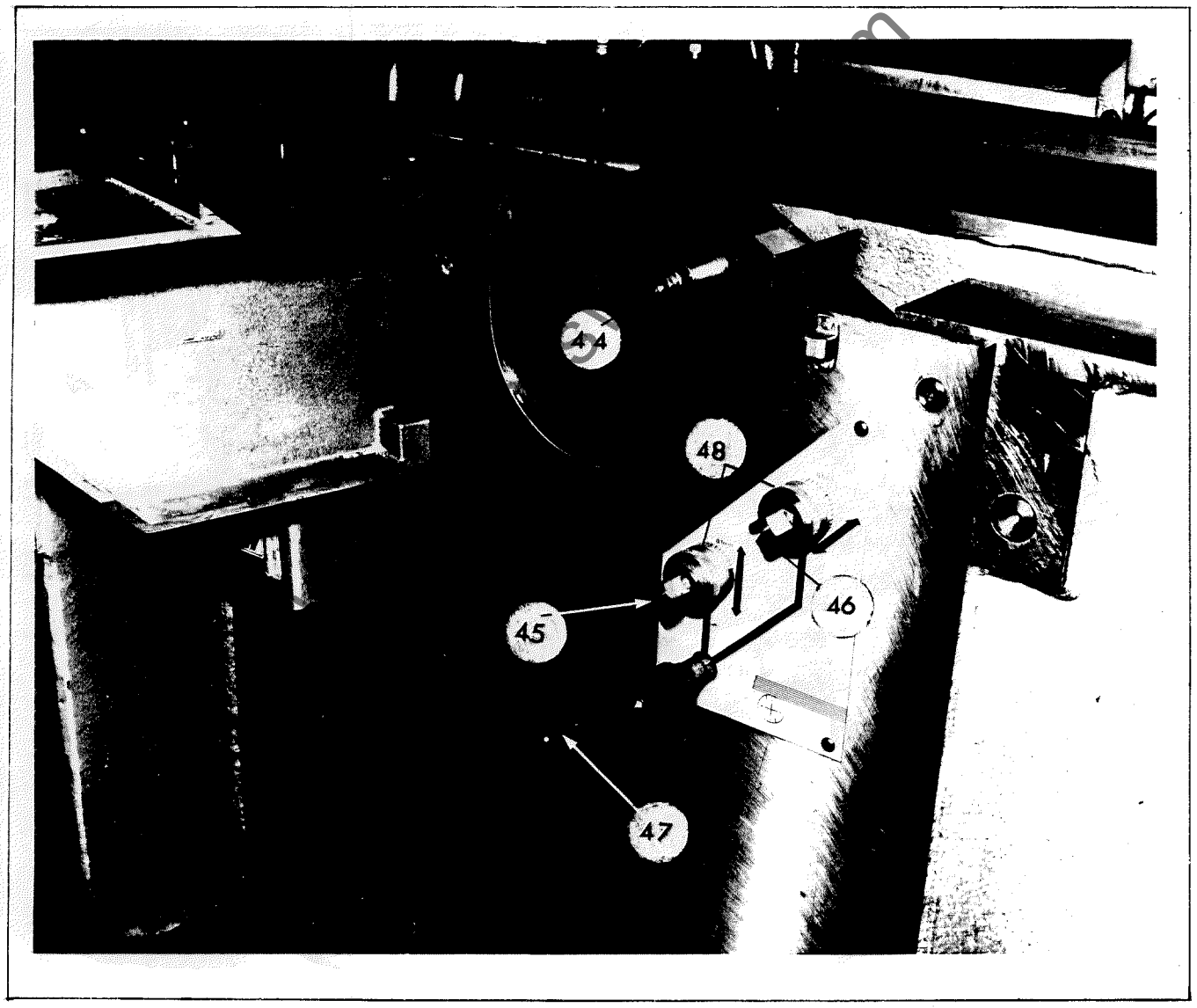


ADJUSTMENTS

FIRST BOTTOM HEAD (cont.)

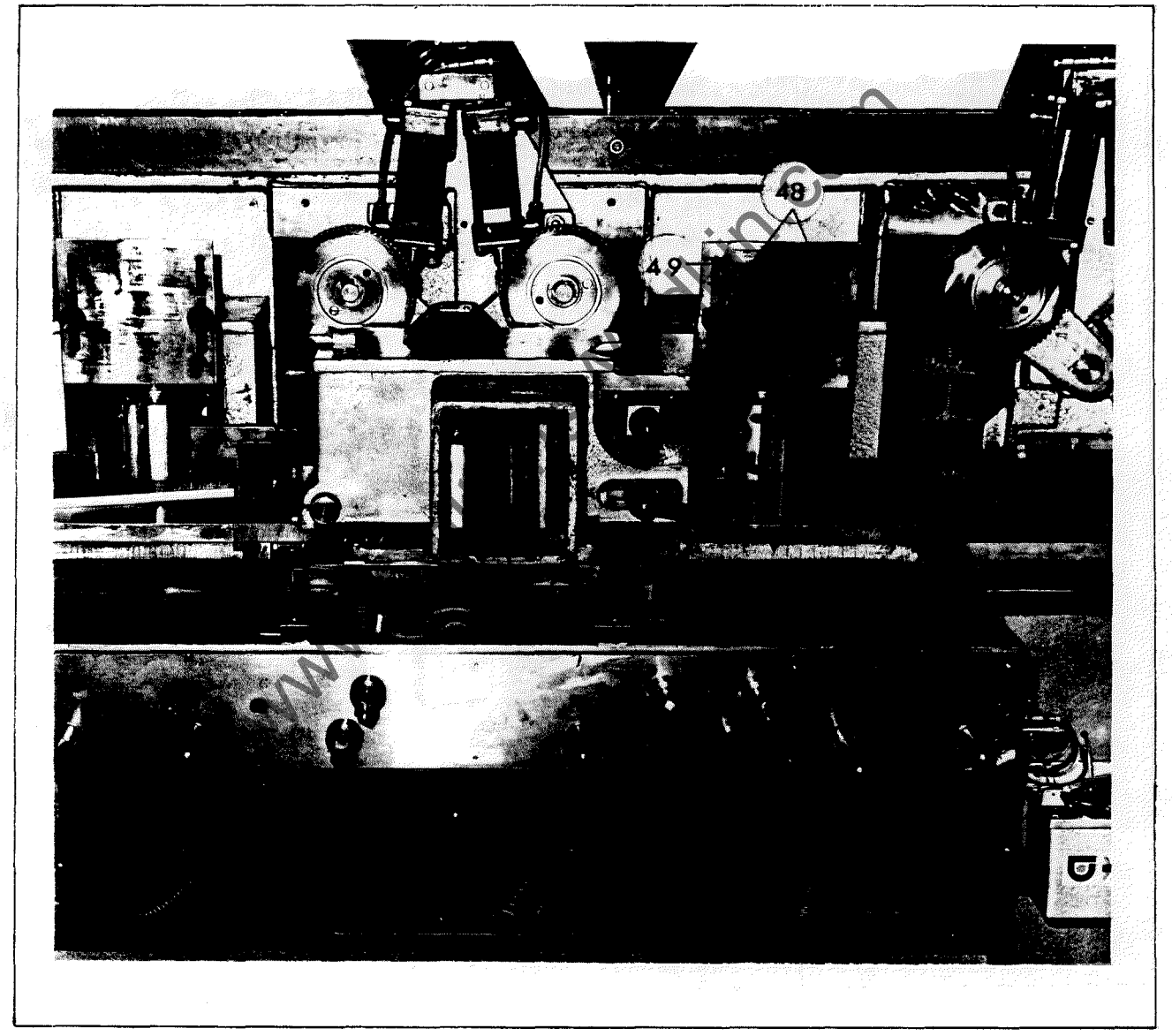
(44) illustrates the spindle minus the cutter block. The cutter spindle can be raised or lowered by engaging the crank handle on square (45) and moved transversely by engaging square (46). The lock for either movement is (47). Each square is provided with a circular vernier (48) graduated in increments of 0.1mm (.004 ins.). The total amount of vertical adjustment is 13mm (0.5in.) The total amount of horizontal adjustment is 25mm (1 in.)

GUARD REMOVED AND DOOR OPEN SHOWING THE EXPOSED SPINDLE



FENCE SIDE VERTICAL HEAD

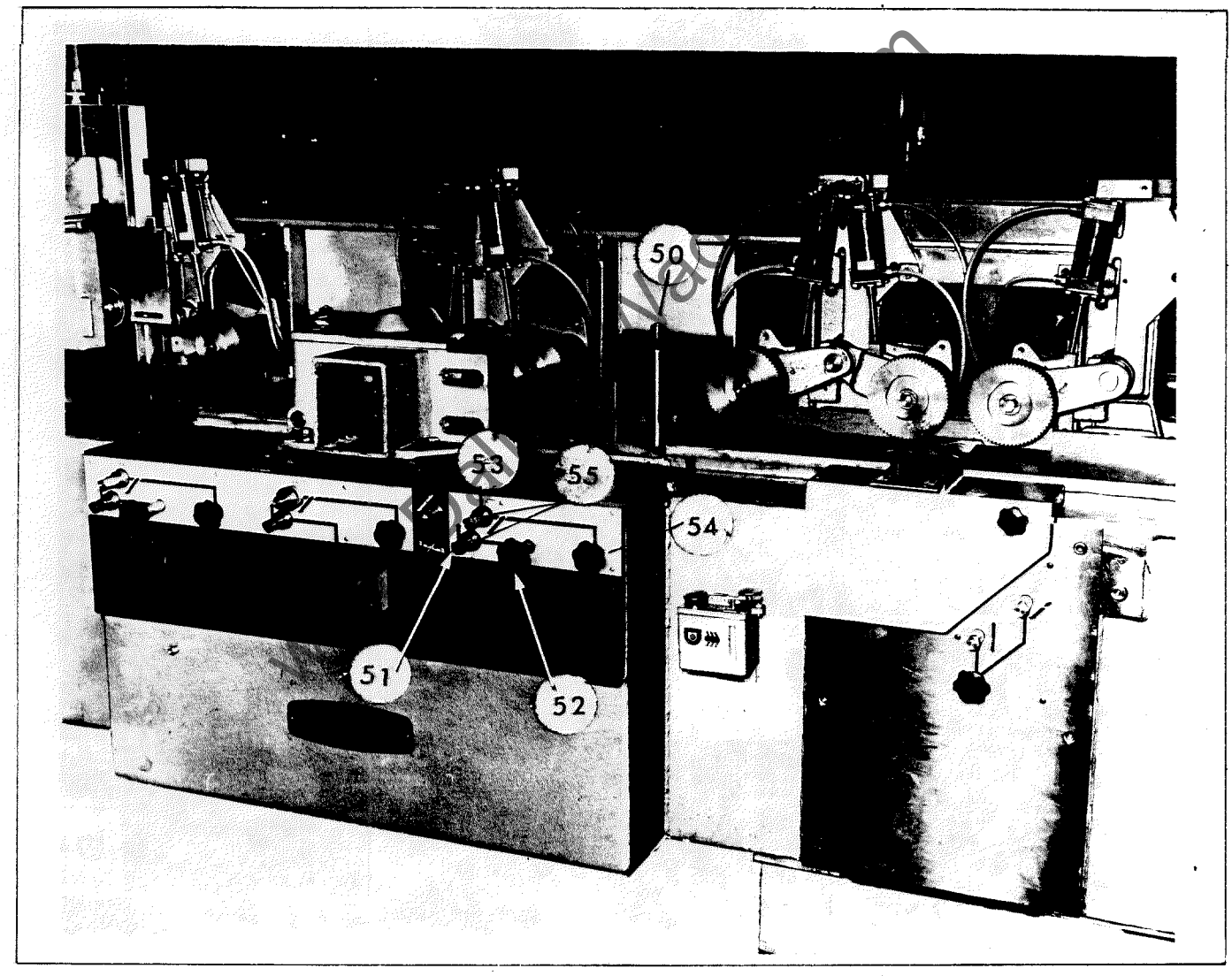
Access to the cutter spindle is made by releasing the cutter guard securing handles (48) and sliding cutter guard (49) out of position.



ADJUSTMENTS

FENCE SIDE VERTICAL HEAD

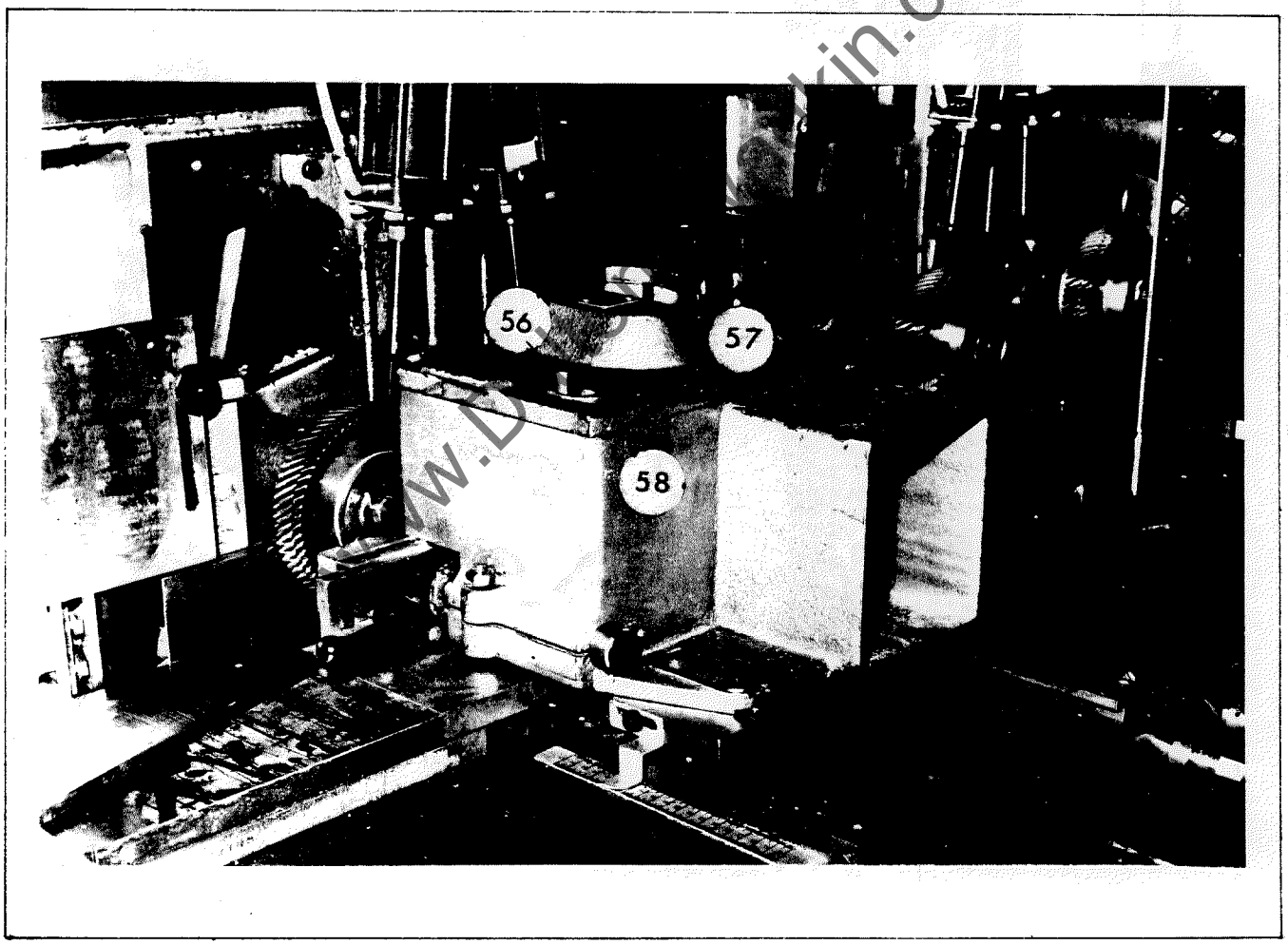
The spindle (50) is shown minus the cutter block. The cutter block spindle is raised or lowered by engaging the crank handle on square (51). The lock for this movement is (52). The cutterblock spindle can be moved transversely by engaging the crank handle on square (53). The lock for this movement is (54). Each square is provided with a circular vernier (55) graduated in increments of 0.1mm (.004 ins.). The total amount of vertical adjustment is 40mm (1.57 ins.).
The total amount of horizontal adjustment is 35mm (.138 in.)



ADJUSTMENTS

NEAR SIDE VERTICAL HEAD

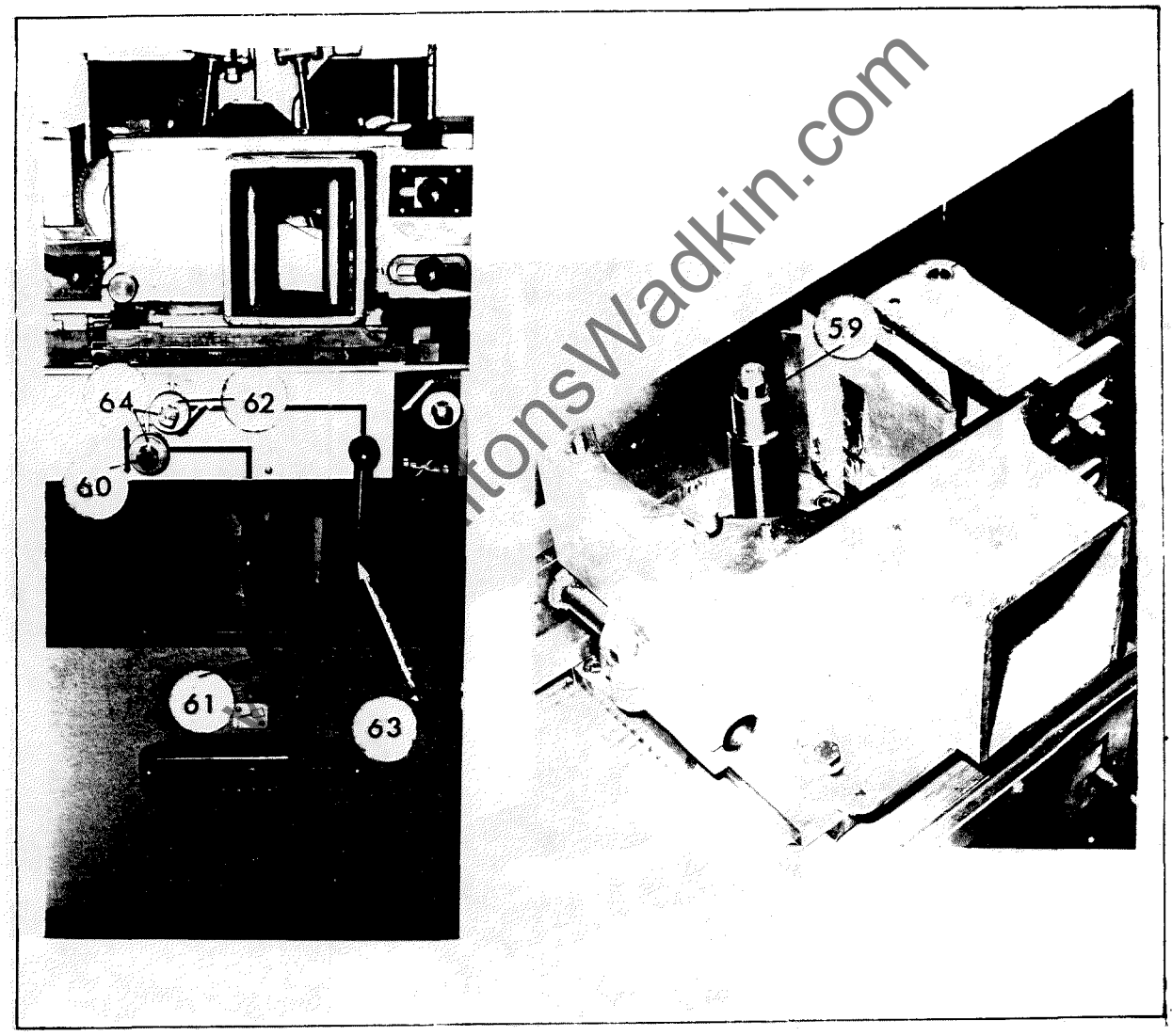
Access to the Cutter Spindle is made by turning thumb screw (56) and removing the cover (57) of the combined chipbreaker and dusthood (58).



ADJUSTMENTS

NEAR SIDE HEAD (cont.)

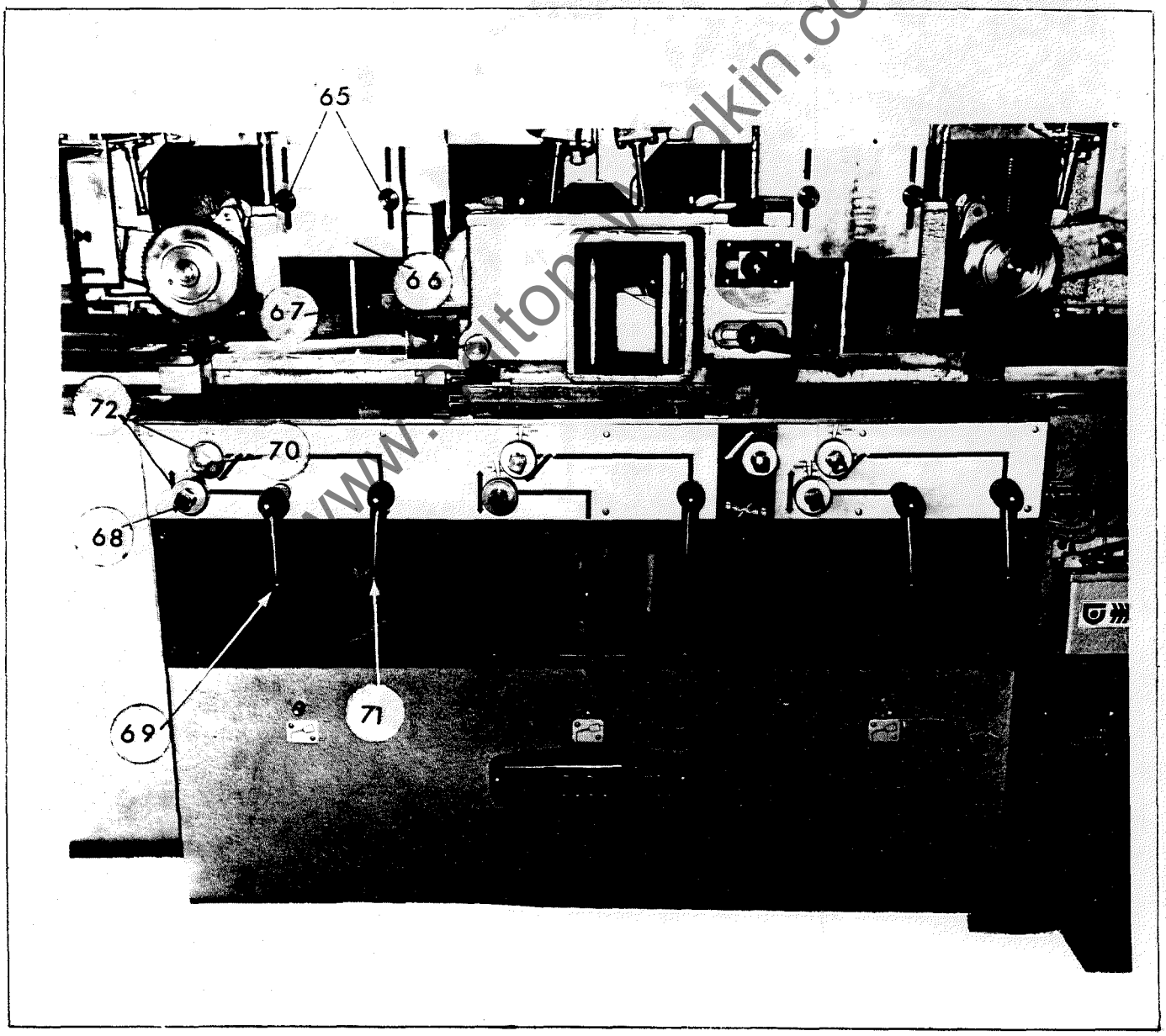
The spindle (59) is shown minus the cutterblock. The cutterblock is raised and lowered by engaging the crank handle on square (60). The lock for this movement is (61). The cutterblock can be moved transversely by engaging the crankhandle on square (62). The lock for this movement is (63). Each square is provided with a circular vernier (64) graduated in increments of 0.1mm (.004in.). The vertical adjustment is 40mm (1.57 ins.) or 180mm (7.08 ins.) with the driving belt removed. The total amount of horizontal adjustment is 200 mm (7.87 in.)



ADJUSTMENTS

SECOND FENCE SIDE HEAD

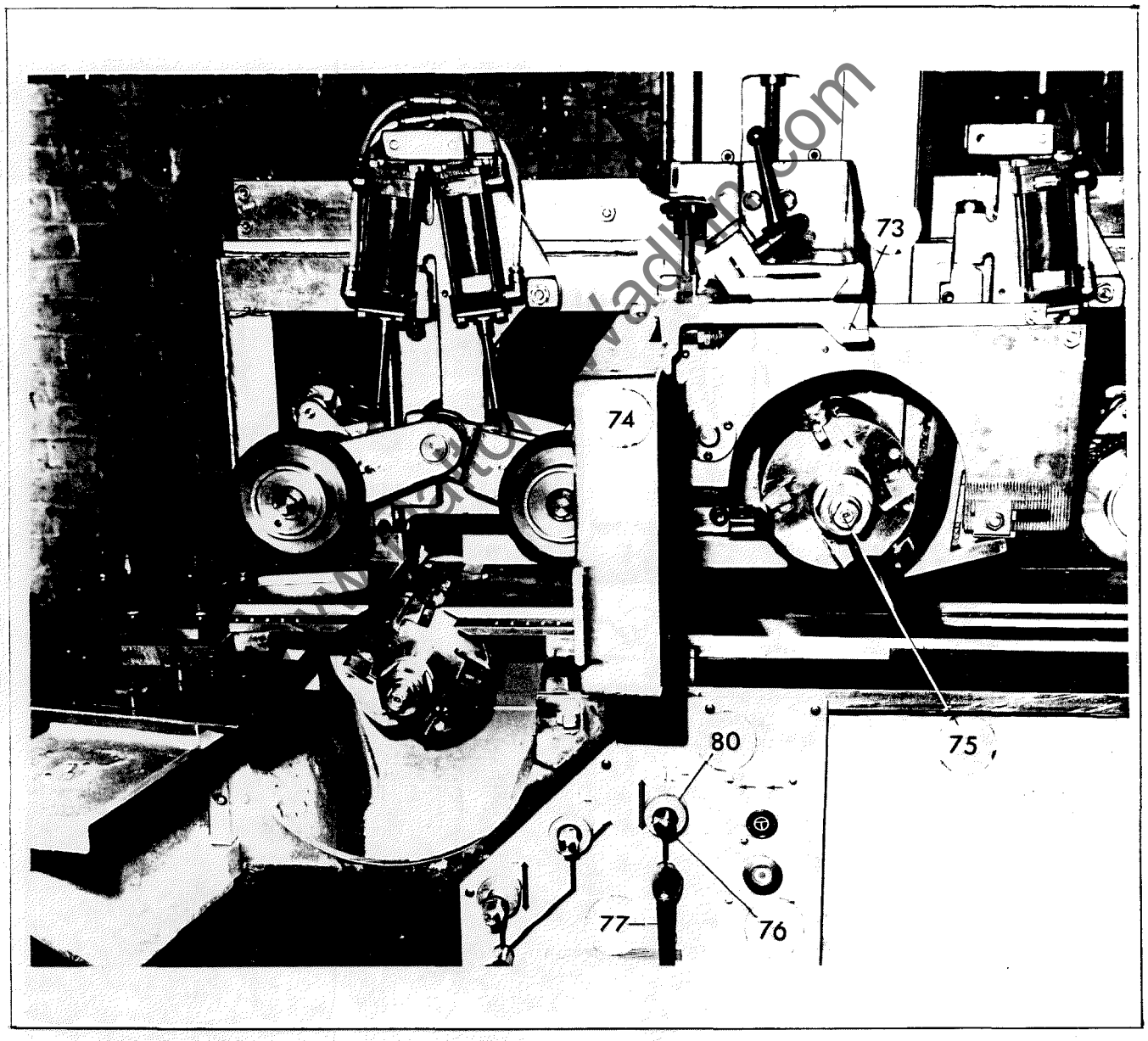
Access to the cutter spindle is made by releasing the cutter guard securing handles (65) and sliding cutter guard (66) out of position. The spindle (67) is shown minus the cutterblock. The cutterblock spindle is raised or lowered by engaging the crank handle on square (68). The lock for this movement is (69). The cutterblock spindle can be moved transversely by engaging the crank handle on square (70). The lock for this movement is (71). Each square is provided with a circular vernier (72) graduated in increments of 0.1mm (.004in.) The total amount of vertical adjustment is 40mm (1.57 ins.). The total amount of horizontal adjustment is 35mm (1.38in)



ADJUSTMENTS

FIRST TOP HEAD

Access to the cutter spindle is made by turning thumb screw (73) and opening door (74) of the combined guard and chip breaker cover. The spindle (75) is shown complete with the cutterblock. The cutterblock is raised and lowered by engaging the crank handle on square (76). The lock for this movement is (77). Each square is provided with a circular vernier (80) graduated in increments of 0.1mm. (.004 in.).



ADJUSTMENTS

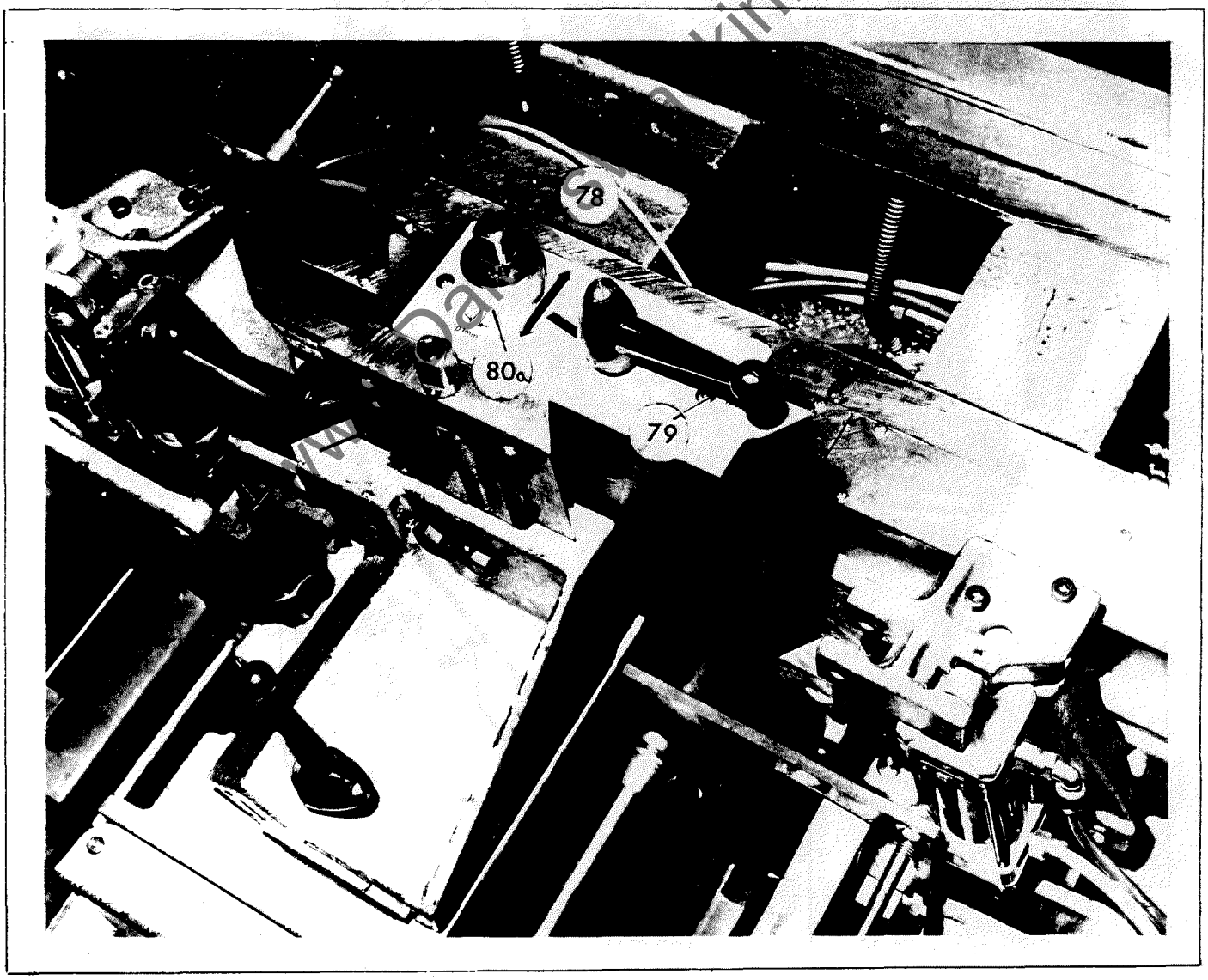
FIRST TOP HEAD (cont.)

The cutterblock can be moved transversely by engaging crank handle on square (78). The lock for this movement is (79). Each square is provided with a circular vernier (80a) graduated in increments of 0.1mm (.004in.) The vertical adjustment is 150mm (5.91 in.)

The horizontal adjustment is 25mm (1 in.).

SECOND TOP HEAD

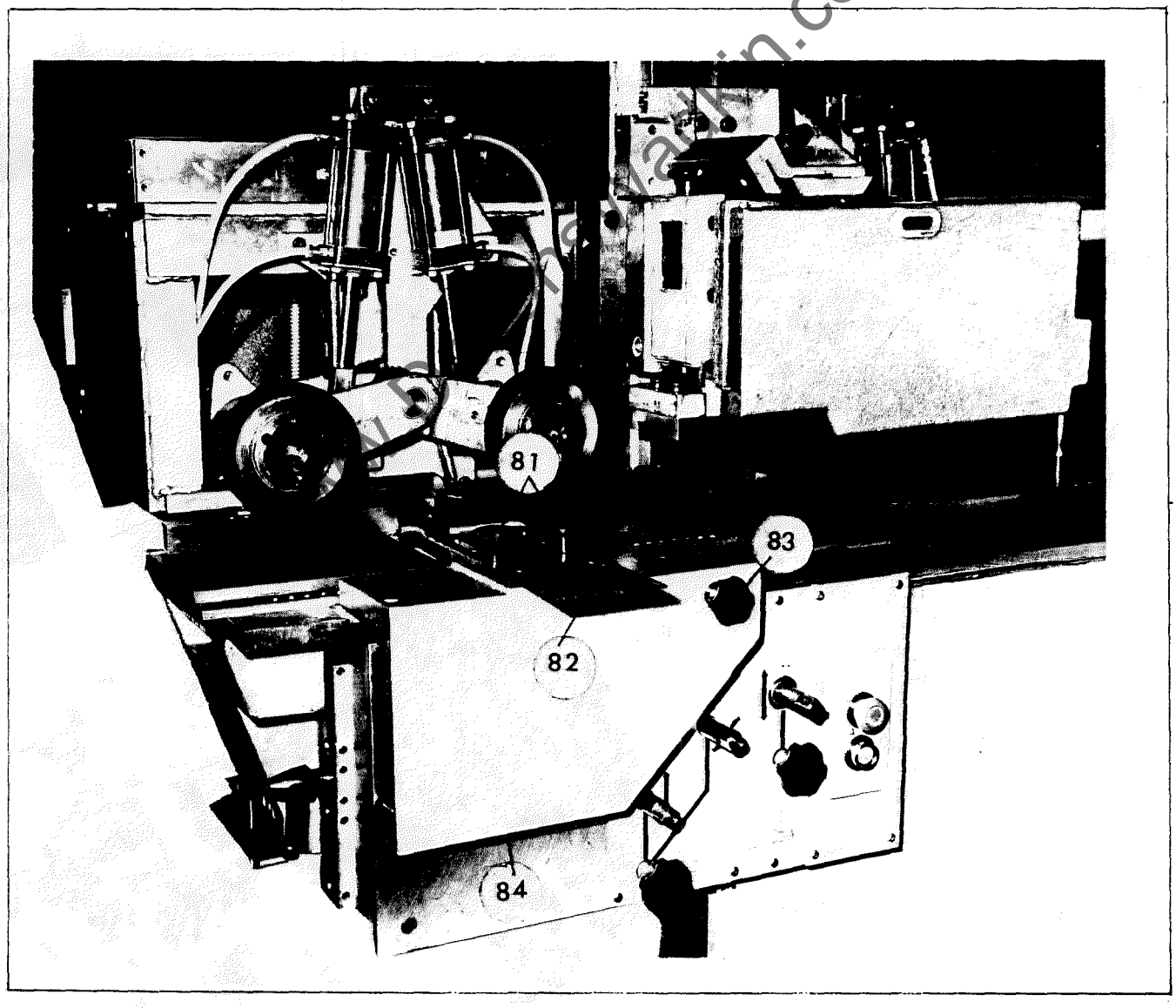
Adjustments as for First Top Head.



ADJUSTMENTS

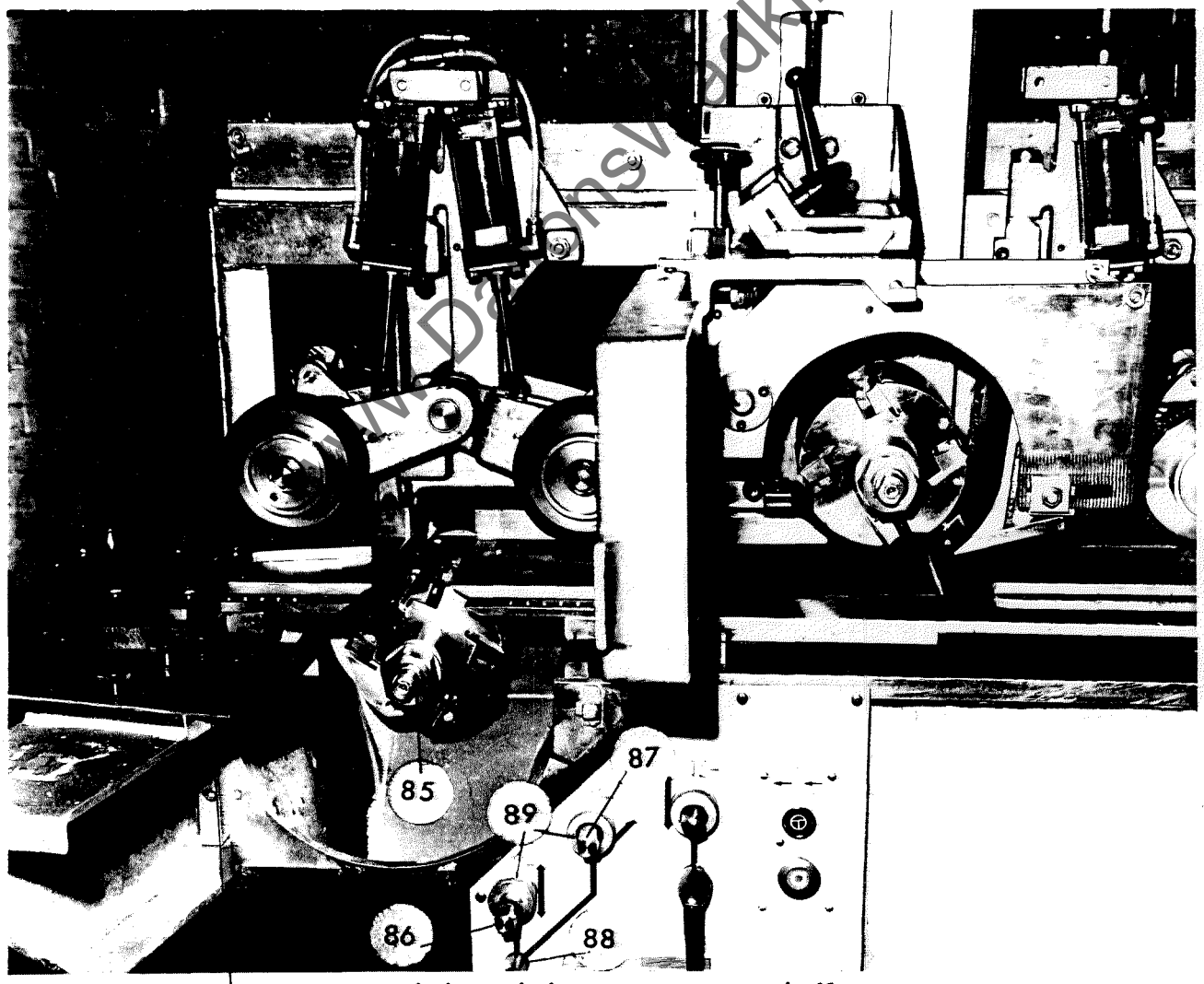
SECOND BOTTOM HEAD

Access to the cutter spindle is made by unfastening handles(81) and sliding cutter guard (82) out of position, following which handle (83) should be unfastened and the door (84) opened.



SECOND BOTTOM HEAD (cont.)

The spindle (85) is shown complete with cutterblock. The cutterblock is raised and lowered by engaging the crank handle on square (86). The cutter block can be moved transversely by engaging crank handle on square (87). The lock for both these movements is (88). Each square is provided with a circular vernier (89) graduated in increments of 0.1mm (.004 in.).
The vertical adjustment is 30mm (1.18 in.)
The horizontal adjustment is 25mm (1 in.).



Cutter guard out of position giving access to spindle.

UNIVERSAL HEAD

ADJUSTMENTS

Horizontal.

The complete universal head assembly can be traversed transversely by movement of the slide via square (90) from either the front or rear of the machine, locking lever (91) holds this movement.

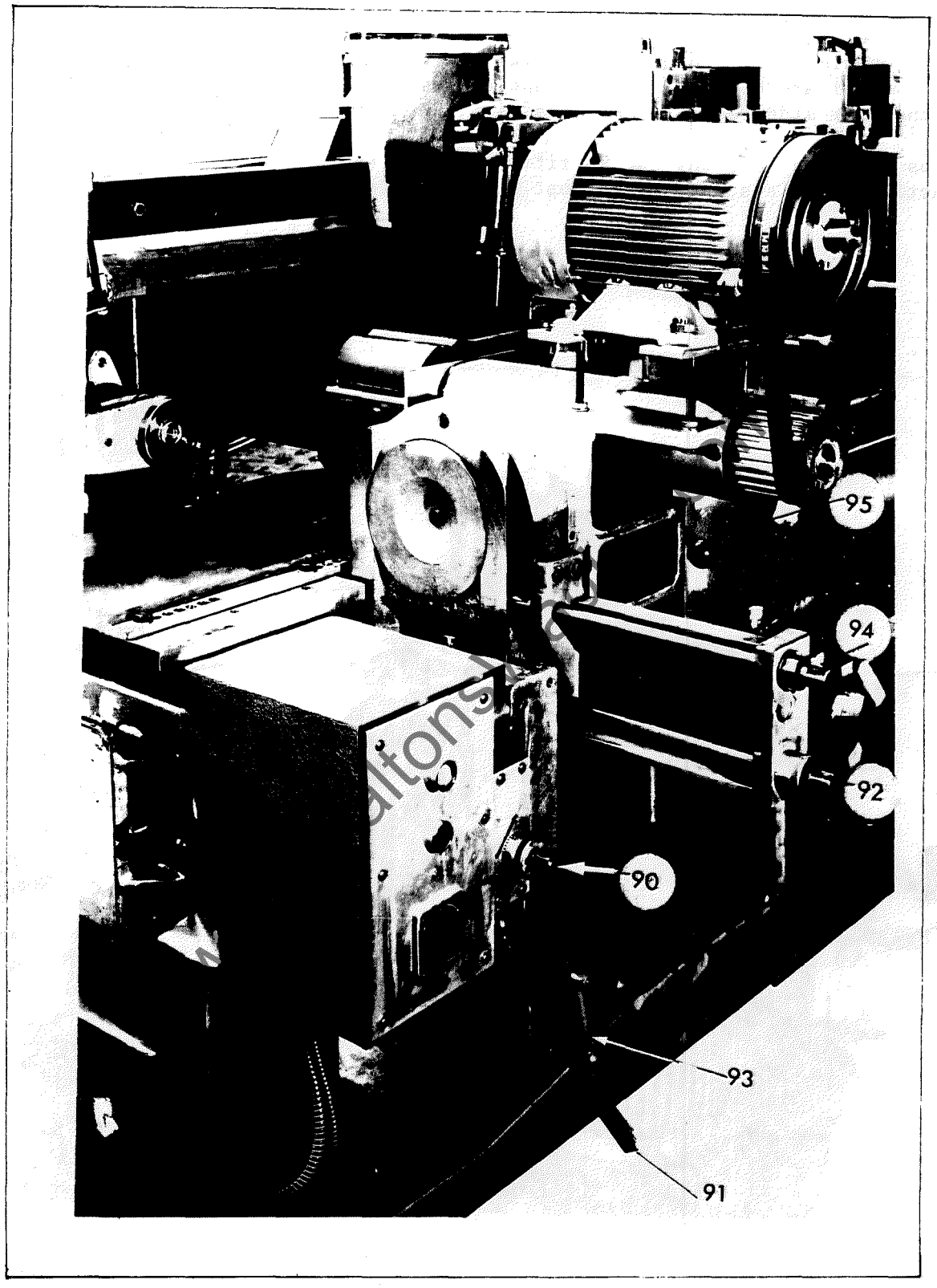
Vertical.

A vertical slide unit mounted on the horizontal saddle can be adjusted via square (92), locking lever (93) holds this movement.

Both of the above movements can be used to provide for either top or bottom head positions. By positioning the spindle in a vertical mode the spindle can be used as a near or fence side head.

CANTING.

The spindle can be adjusted 110° back or forward to the vertical via square (94) from either the front or rear of the machine and locked in any intermediate position by locking lever (95). A canted head cutting position can be selected above or below the table.



UNIVERSAL HEAD WITH GUARD REMOVED
SHOWING MOTOR DRIVING BELT AND PULLEY

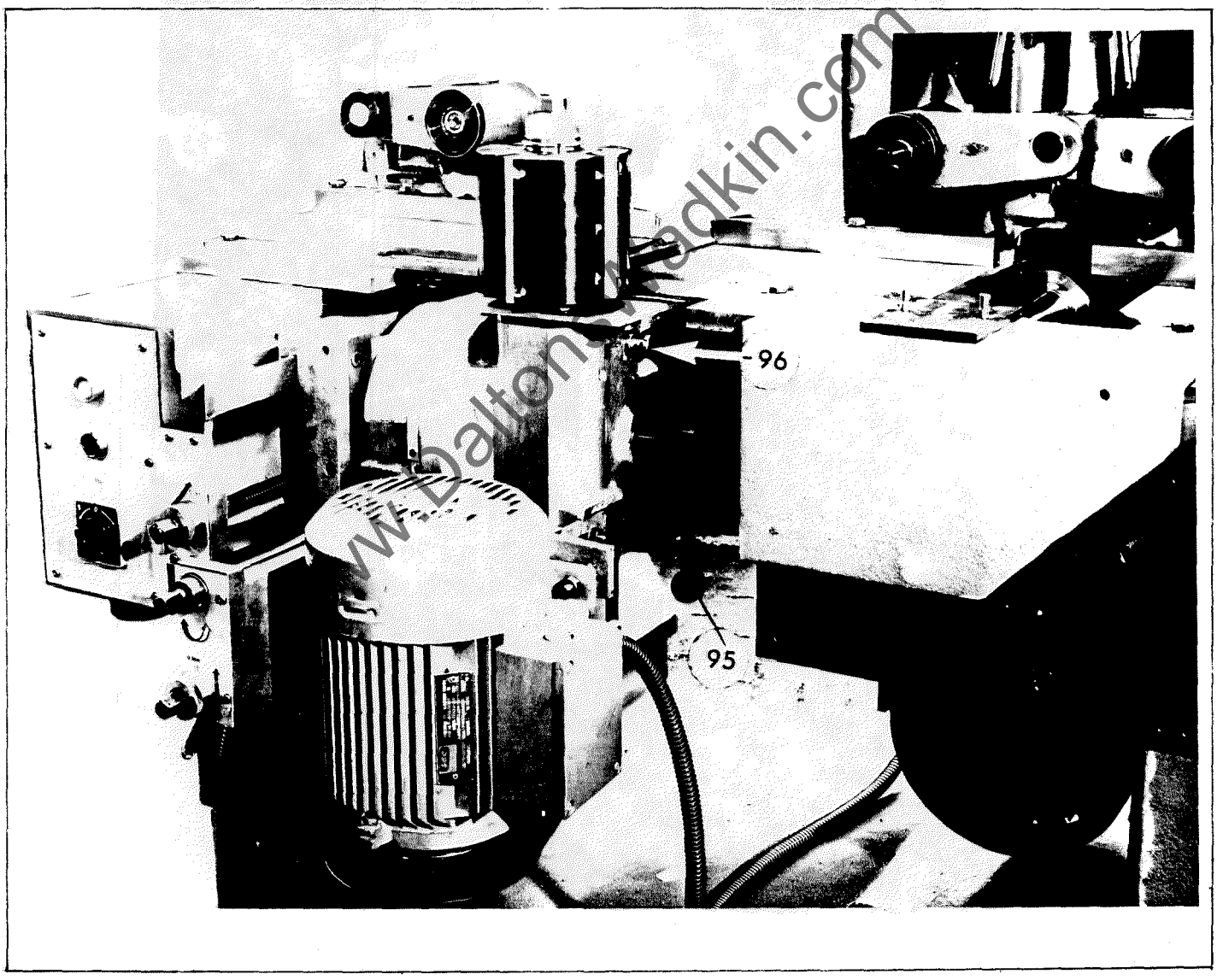
ADJUSTMENTS

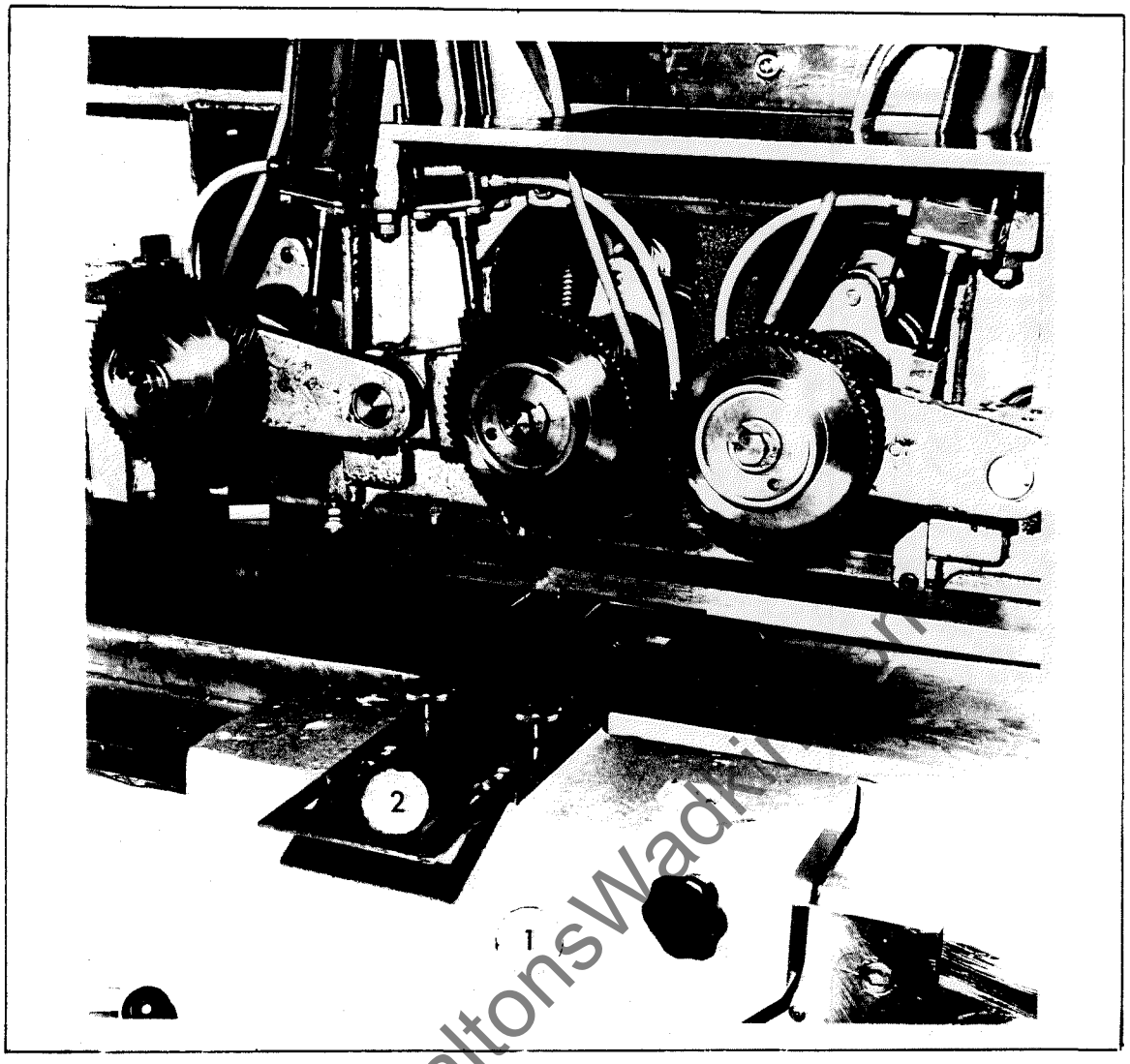
UNIVERSAL HEAD (cont.)

CANTING. (cont.)

(95) is the locking lever to the square on the spindle.
A location pin (96) is provided to lock the head in one of three positions about a total arc of 180°, the top and bottom positions being 90° equidistant from the near side vertical head position, the latter being regarded as at 0°.

Various bedplate sections can be fitted to suit the mode of machining, a dust extraction hood is supplied and must be fitted to the mounting plate provided.





PREPARATORY STEPS TO MACHINING

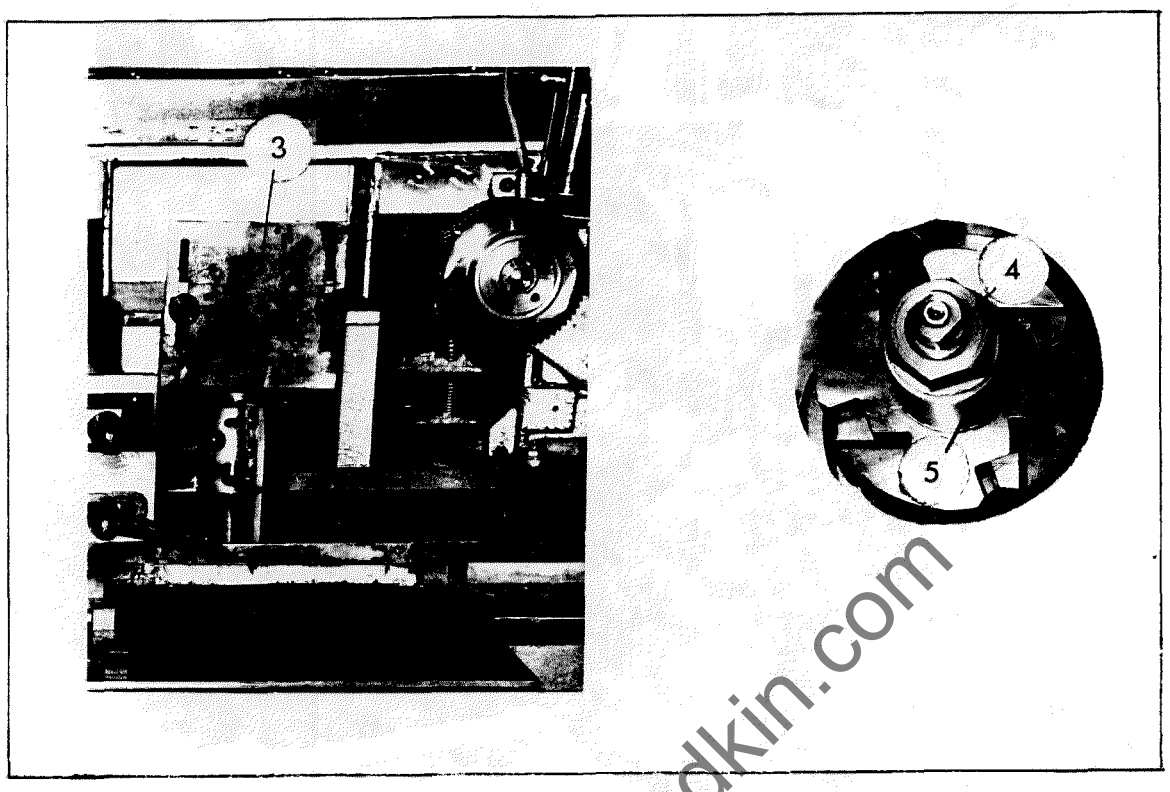
Having knowledge of the dimensions of the finished workpiece, the following sequential procedures should take place.

1a First Bottom (Horizontal) Head.

Open door (1) and release the cutter guard (2). Unscrew the spindle nut (left hand thread) and remove the upper cone. Clean the spindle, the bore and knives of the cutterblock then fit the cutterblock on the spindle. Replace the cone, the nut and re-tighten with the spanner provided. Ascertain that the cutterblock is running quietly by switching on the spindle motor. It is essential that the cutterblock runs smoothly and concentrically.

1b Adjusting the First Bottom (Horizontal) Head.

The cutterblock should be adjusted for height and positioned laterally as described on page 9
The final position of the cutter blades relative to the infeed table should be such that when the spindle is rotated the knives of the cutterblock brush a straight edge. Adjustment of the table is described in Section 5.

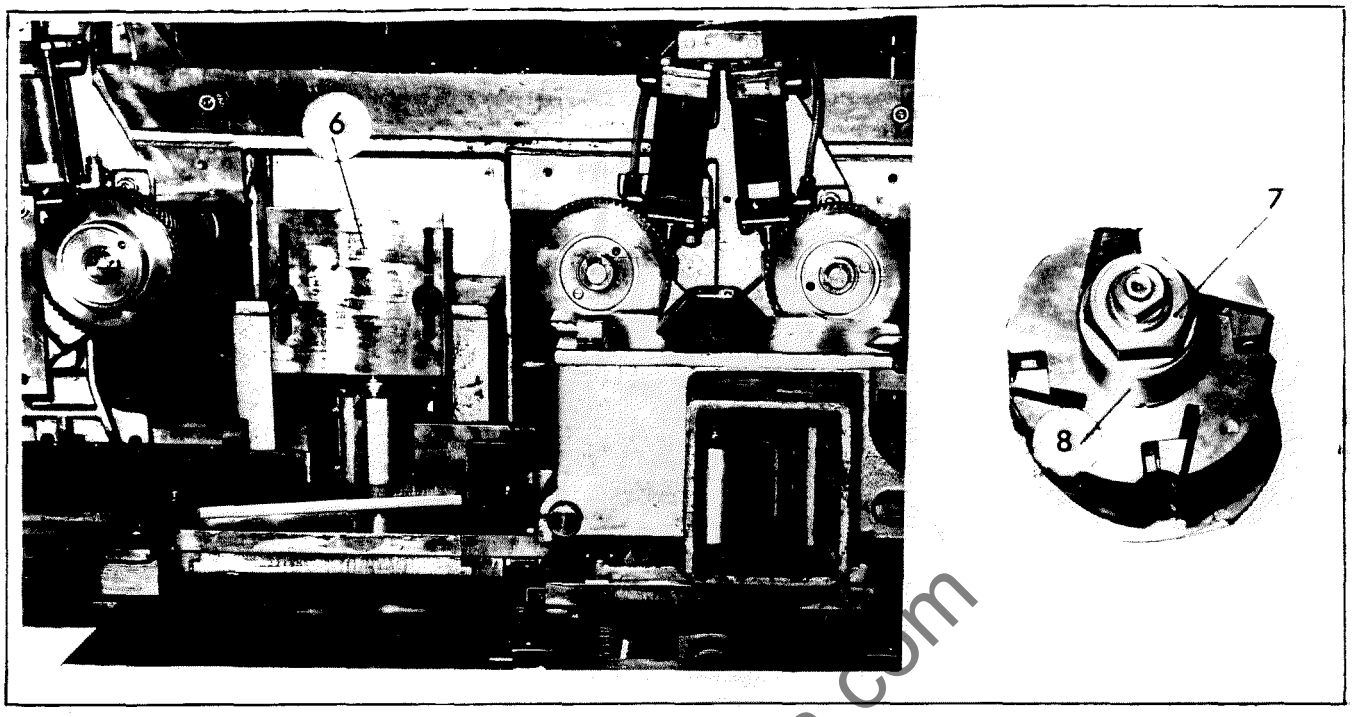


2. First Fence Side (Vertical) Head.

a. Raise the cutter guard (3). Unscrew the spindle nut (4) (right hand thread) and remove the upper cone (5). Clean the spindle, the bore and knives of the cutterblock then fit the cutterblock on the spindle. Replace the cone, the nut and retighten with the spanner provided. Ascertain that the cutterblock is running quietly by switching on the spindle motor. It is essential that the cutterblock runs smoothly and concentrically.

b. The cutterblock should be adjusted for height and positioned transversely as described on page 11

c. The fence between the first fence side vertical head and second fence side vertical head and the near side vertical spindle must be adjusted to the required chip thickness. However, before the final adjustment to the fence vertical spindle can be made it will be necessary to adjust the near side vertical spindle see Page 13
For adjustment of the bedplate refer to the separate section.

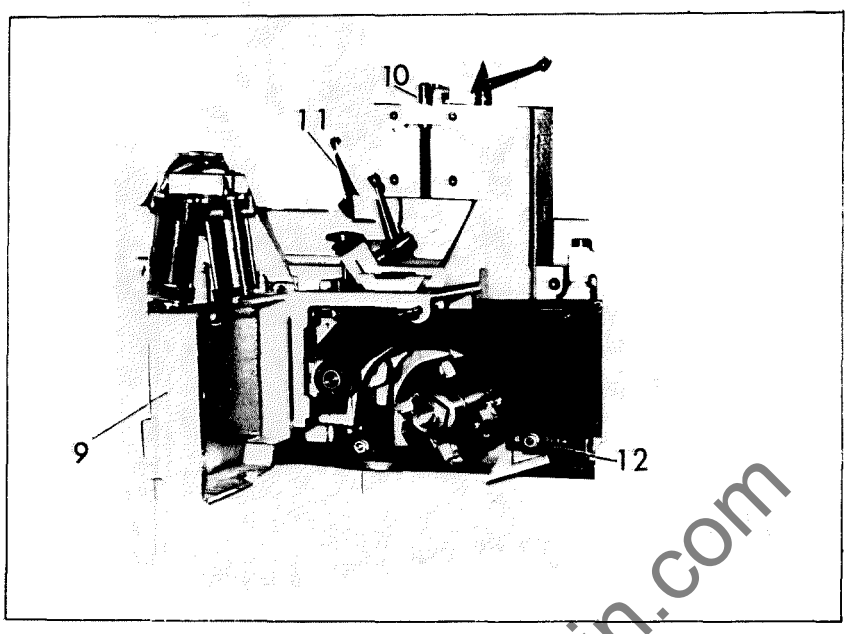


3. The Second Fence Side (Vertical) Head.

a. Raise the cutter guard (6). Unscrew the spindle nut (7) (right hand thread) and remove the upper cone (8). Clean the spindle, the bore and knives of the cutterblock and then fit the cutterblock on the spindle. Replace the cone the nut and retighten with the spanner provided. Ascertain that the cutterblock is running quietly by switching on the spindle motor. It is essential that the cutterblock runs smoothly and concentrically.

b. The cutterblock should be adjusted for height and positioned transversely as described on page 14

c. The fence between the second fence side vertical head and the first top head is adjustable sideways i.e. at right angles to the cutter knives and these should be adjusted to the required chip thickness.
For adjustment of the bed plate refer to the separate section.



4. The First Top Head (Horizontal)

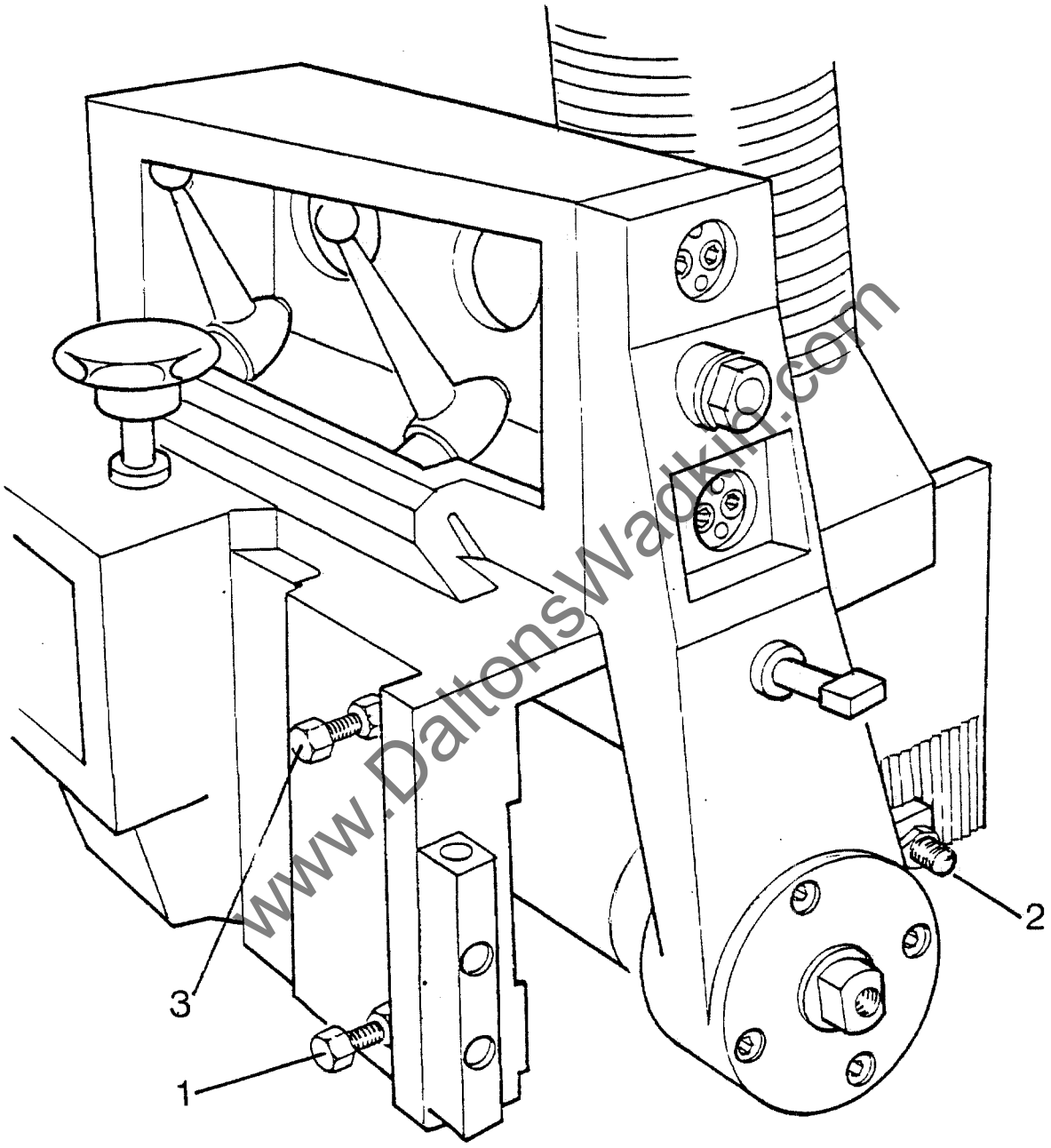
a. Open the door (9). Unscrew the spindle nut (right hand thread) and remove the upper cone, clean the spindle, the bore and knives of the cutterblock then fit the cutterblock on the spindle. Replace the cone, the nut and retighten the nut with the spanner provided. Ascertain that the spindle is running quietly by switching on the spindle motor. It is essential that the cutterblock runs smoothly and concentrically.

b. The spindle should be adjusted for height and positioned transversely as described on page 15

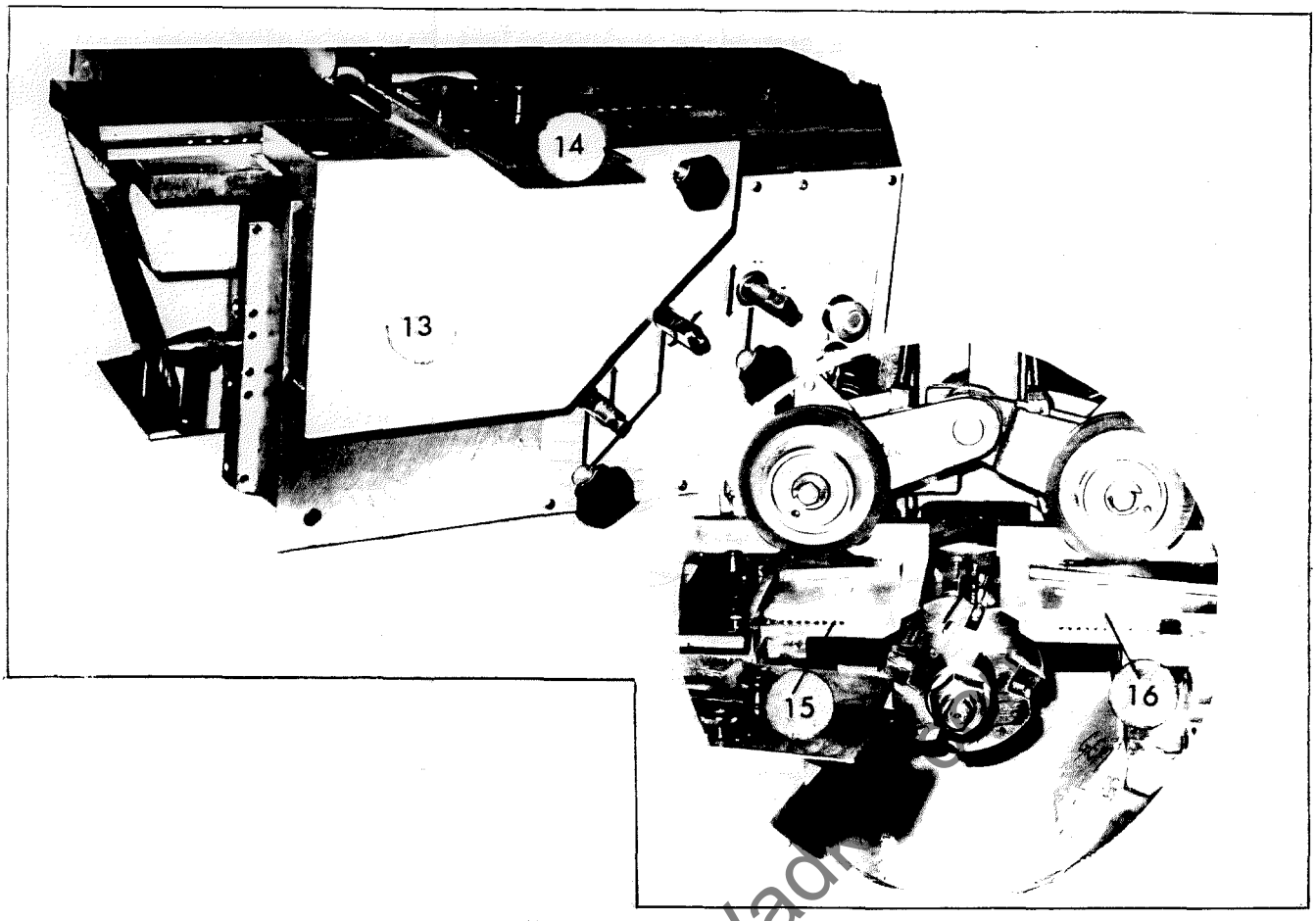
c. Adjustment of the Chipbreaker.

If necessary position the chipbreaker by either raising or lowering it relative to the cutterblock. This is achieved by means of a crank on square (10). The locking lever for this movement is (11). Adjust the lower edge of the chipbreaker by slackening nut (12) so that it lies approximate 5mm (.13125 in.) lower than the cutting circle of the cutterblock.

To adjust the chipbreak to accommodate a cutterblock having a different cutting circle it will be necessary to loosen screw (1) and nut (2) and adjust the chipbreaker to suit the new conditions. Screw (3) is then employed to adjust the tension of the chipbreaker springs.



CHIPBREAKER FOR TOP HORIZONTAL HEAD WITH OUTBOARD BEARING



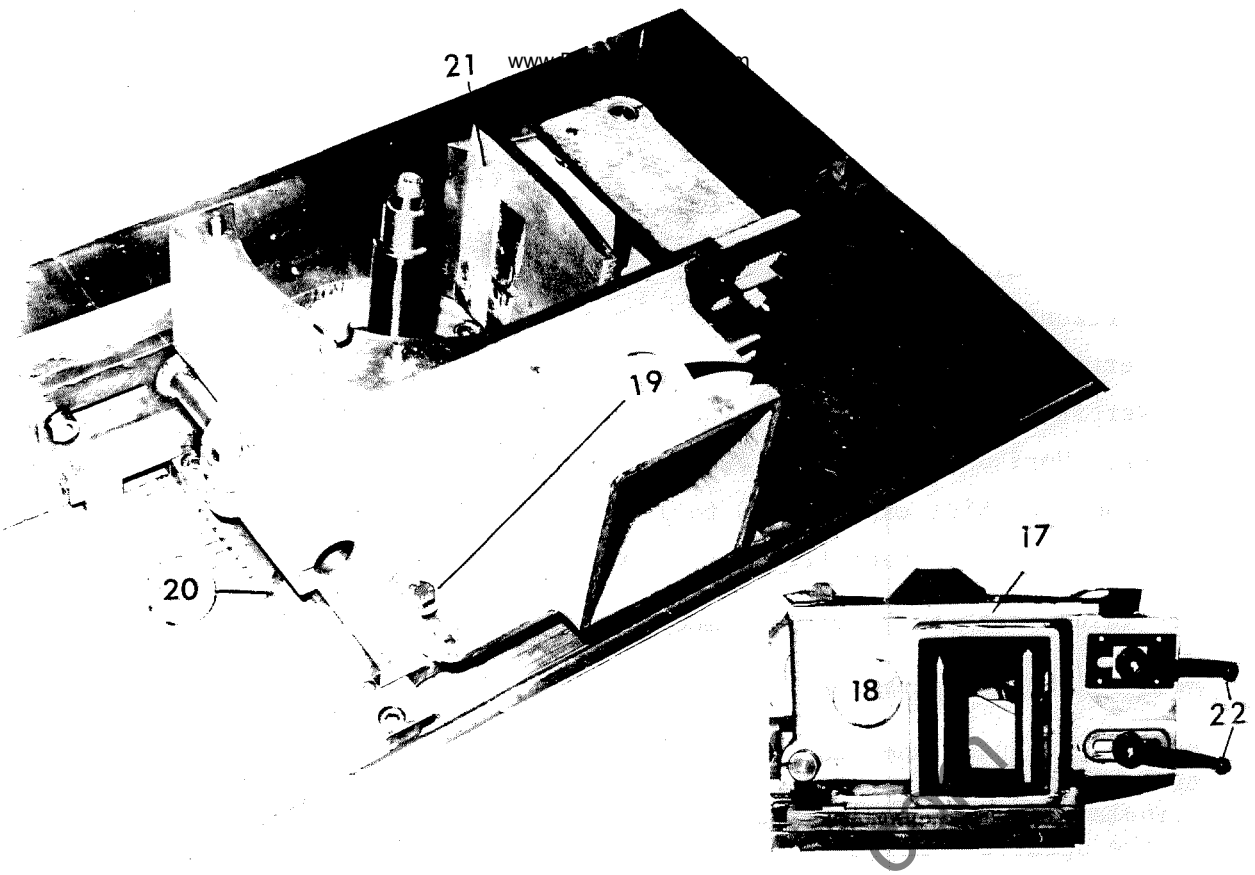
5. The Second Bottom (Horizontal) Head

Open the door (13) and at the same time release cutter guard (14). Unscrew the spindle nut (left hand thread) and remove the upper cone. Clean the spindle, the bore and knives of the cutterblock then fit the cutterblock on the spindle. Replace the cone, the nut and re-tighten with the spanner provided. Ascertain that the cutterblock is running quietly by switching on the spindle motor. It is essential that the cutterblock runs smoothly and concentrically.

b. Adjusting the second bottom (horizontal) head.

The cutterblock should be adjusted for height and positioned transversely as described on page 18.
The final position of the cutterblades relative to the bedplate (15) and bedplate (16) should be such that when the spindle is rotated the knives of the cutterblock brush on a straight edge.

Adjustment of the bedplates and outfeed table is described on pages 39-90 and 101.



6. The Near Side (Vertical) Head.

a. Remove the cover (17) from the combined chipbreaker and exhaust hood (18) Unscrew the spindle nut (left hand thread) and remove the upper cone. Clean the spindle, the bore and knives of the cutterblock, then fit the cutterblock on the spindle. Replace the cone, the nut and retighten with the spanner provided. Ascertain that the cutterblock is running quietly by switching on the spindle motor. It is essential that the cutterblock runs smoothly and concentrically.

b. The cutterblock should be adjusted for height and positioned transversely as described on page 13

c. The chipbreaker can be adjusted transversely relative to the bedplate by slackening the two nuts (19) and repositioning according to requirements. A suitably graduated scale (20) is provided to assist this adjustment. The chip deflector plate (21) can be adjusted according to the cutting circle requirements by slackening locking levers (22) and moving the chip deflector plate carrier in a lateral direction.
For adjustment of the bedplate refer to the separate section.

8. UNIVERSAL HEAD

The Universal Spindle can be operated in any of the following positions.

1. Horizontal above the table
2. Horizontal below the table
3. Vertical Near Side
4. Vertical Rear Side (Conventional Fence Side)
5. From Horizontal above to Vertical
6. From Near Side cant from 0 to 110°
7. From Rear Side cant from 0 to 110°

For adjustment of the various modes see Page 20

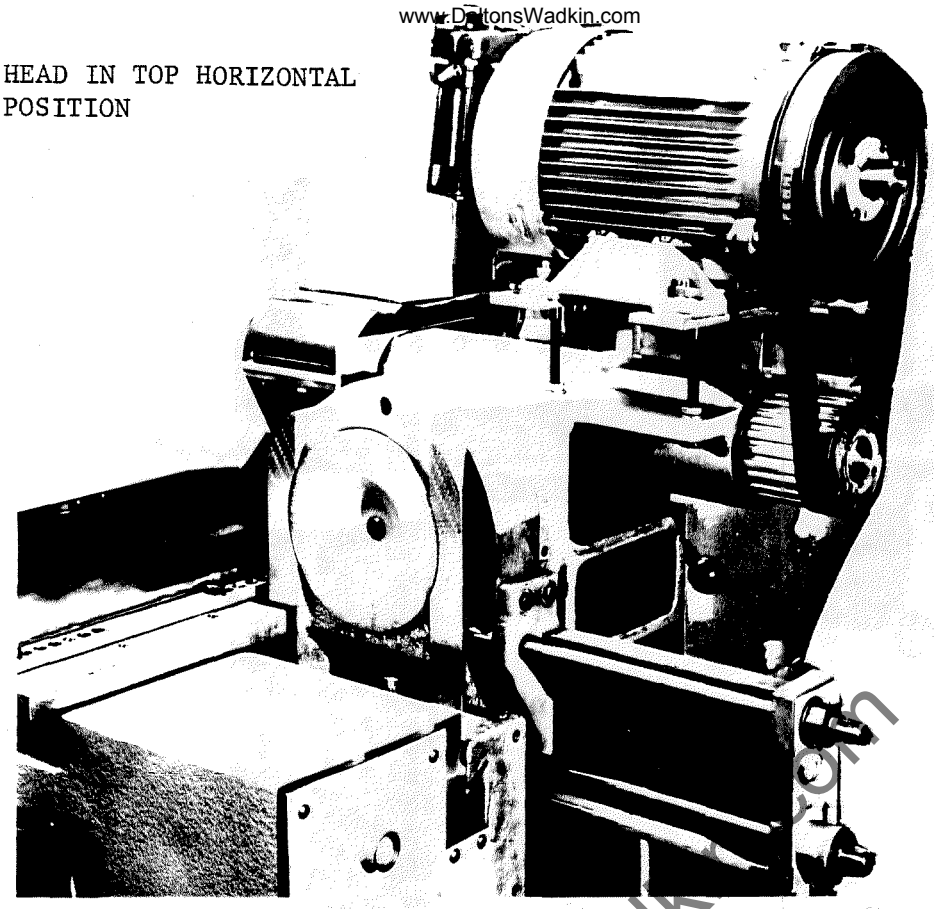
Mounting the Cutterblock.

Remove the guard and exhaust hood, this gives access to the spindle, unscrew the spindle nuts (right hand thread) and remove the upper cone, clean the spindle, the bore and the cutters of the cutterblock, then fit the cutterblock on the spindle. Replace the cone, the nuts and re-tighten with the spanner provided. Replace the guard and exhaust hood according to the selected mode of spindle. There are two different combined guards and hoods, one for Bottom Horizontal and Near Side Spindle and the other for Top Horizontal and Fence Side Spindle.

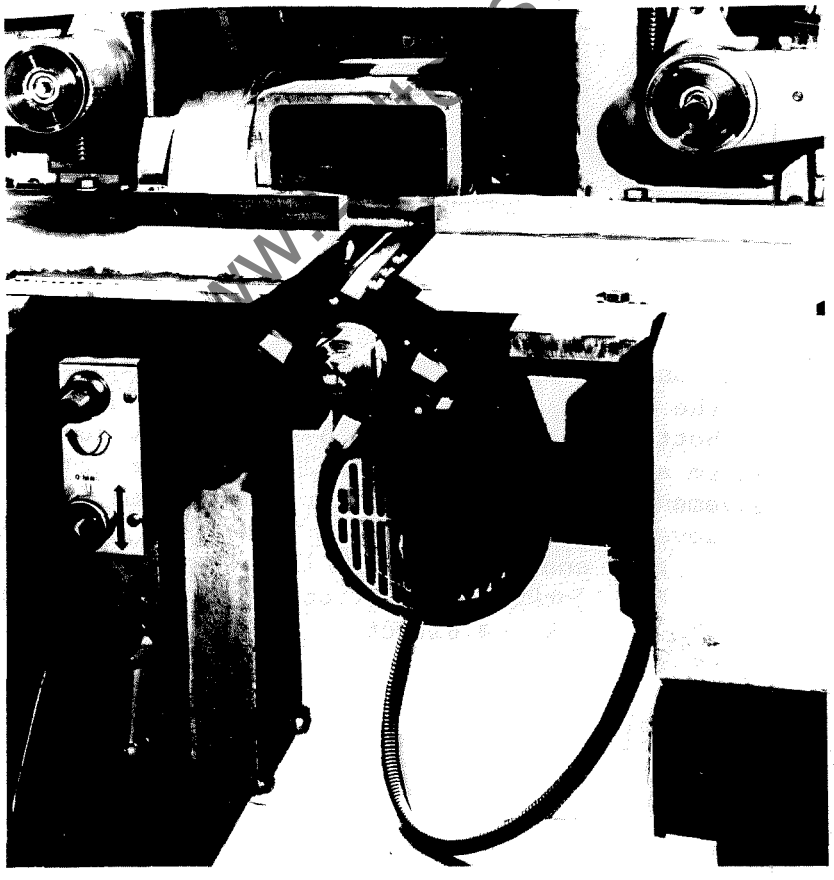
Ascertain that the cutterblock is rotating in the right direction for the position selected e.g. If the spindle was last used in the top horizontal position or vertical position and is now required to operate in the bottom horizontal position, then it will be necessary to reverse the direction of rotation of the cutterblock by means of the switch provided for this purpose. In every case it should be ascertained that the cutterblock is running quietly and concentrically. The outfeed table and bedplates should be adjusted to suit the mode of the spindle and in this respect it is necessary to select that bedplate which accommodates the configuration of the spindle.

For details of the Bedplates refer to Section 5

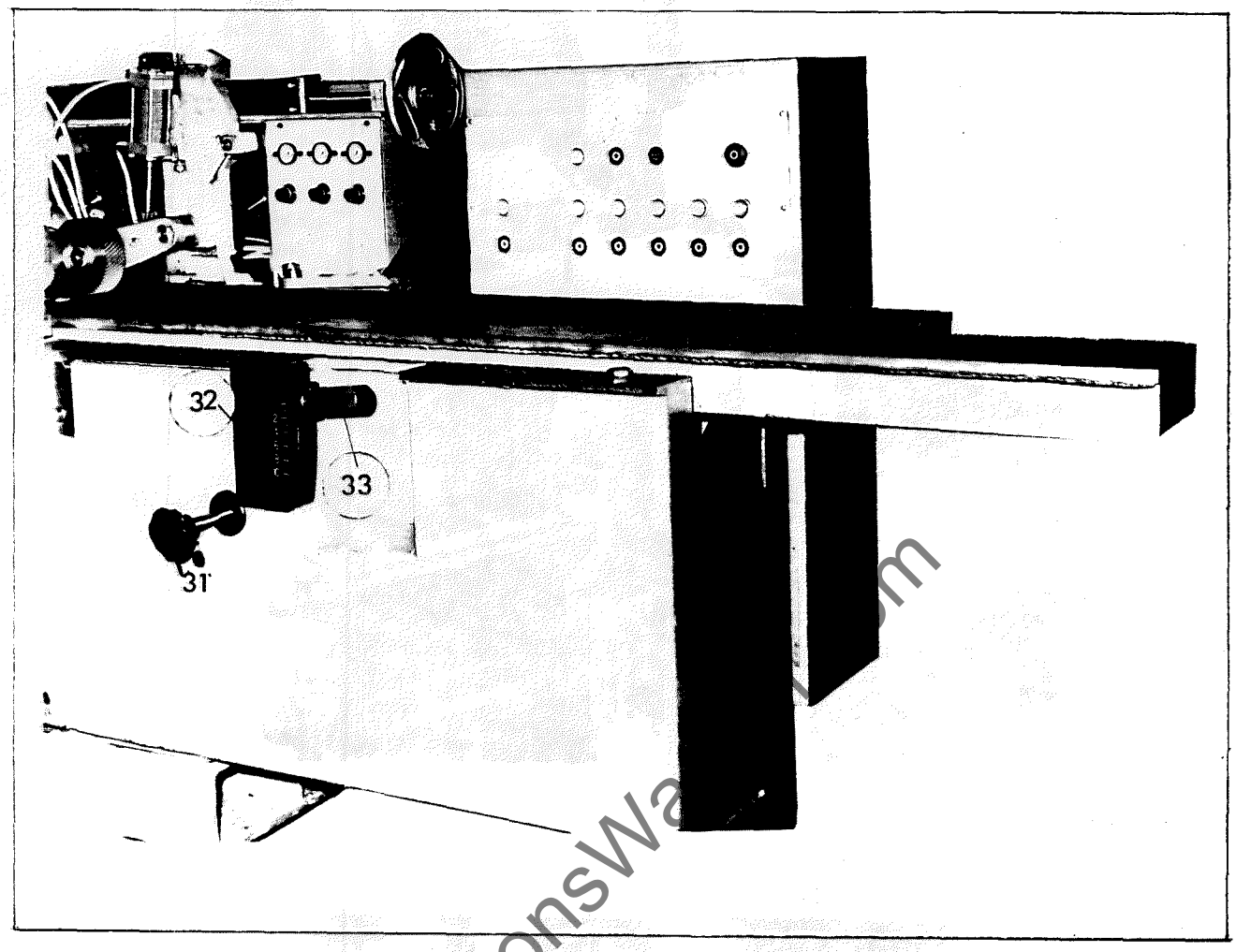
HEAD IN TOP HORIZONTAL POSITION



HEAD IN BOTTOM HORIZONTAL POSITION



UNIVERSAL HEAD



INFEED TABLE

To cater for a combination of twist and bow which may be present in the timber to undergo machining, the height of the infeed table can be adjusted relative to the first bottom head cutterblock by means of a conveniently situated lever mechanism and graduated scale (32) at the front of the machine Each graduation of movement represents a rise or fall of 1mm (.04 ins.) - the maximum amount of movement being limited to 10mm (0.39 ins.): Movement of the lever is by twist grip control from the lever control handle (33). A twist or turn in a counter clockwise direction unfastens the lever and an opposite twist i.e. in a clockwise direction locks the lever in the selected position.

THE FEEDWORKS

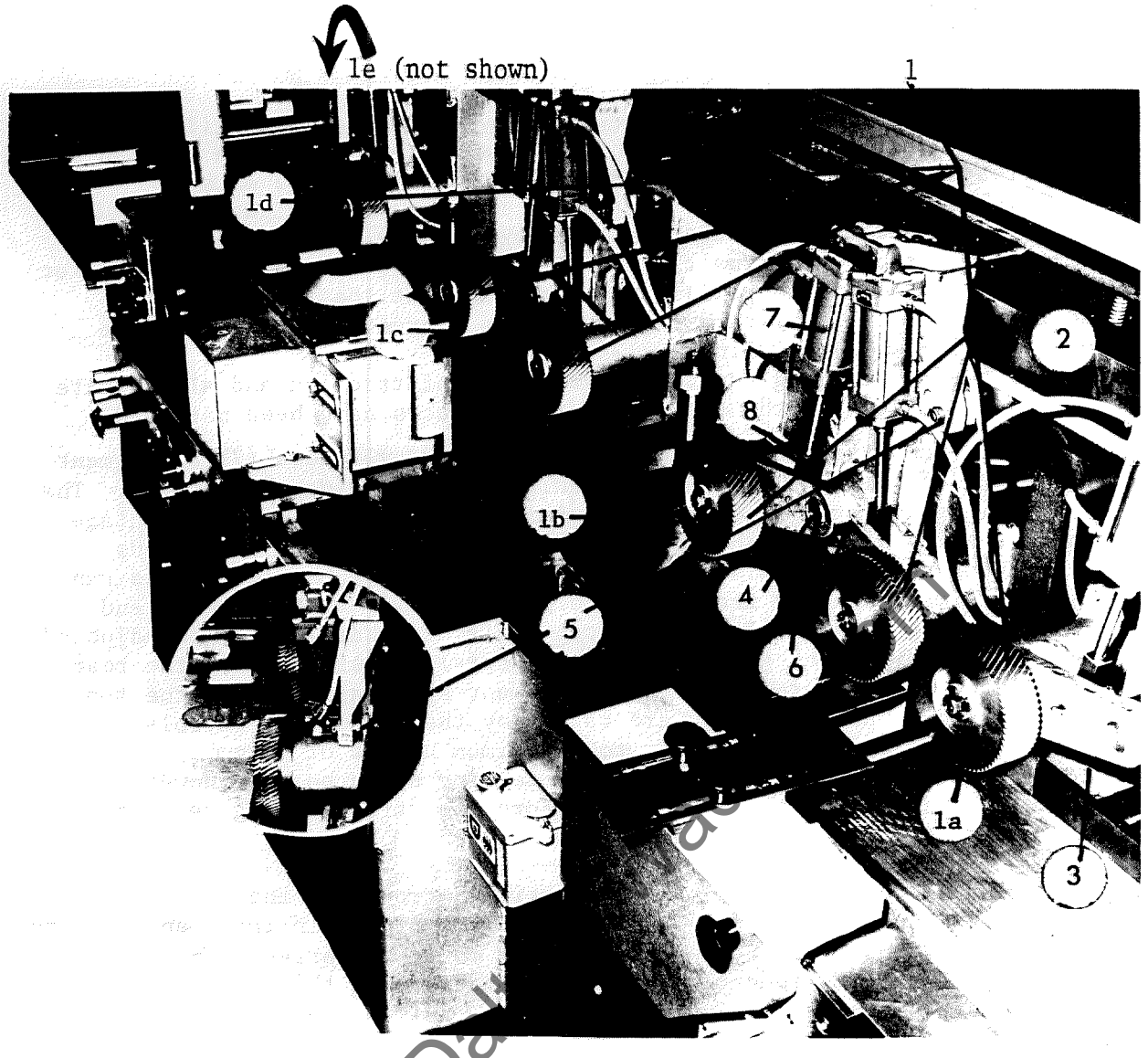
To accomplish 'Through Feeding' a series of overhead Feed rolls (1) are set at intervals along the length of the machine. These are carried in a fabricated beam (2) which is mounted on the rear of the machine body (3). There are eight rolls on a basic machine and any additional head is supplemented by an additional feed roll. The rolls are mounted in swings (4). Each roll or pair of rolls are carried from a pivoted bracket the two nuts (5) allow the rolls to be pitched about the pivot relative to the fence (6). An arbitrary figure for the degree of pitching can be taken as 2mm in 300mm (.0625in. in 12ins.)
IMPORTANT: 'Over' pitching can lead to the loss of traction and also create a tendency to straighten the timber before the faces have been machined.

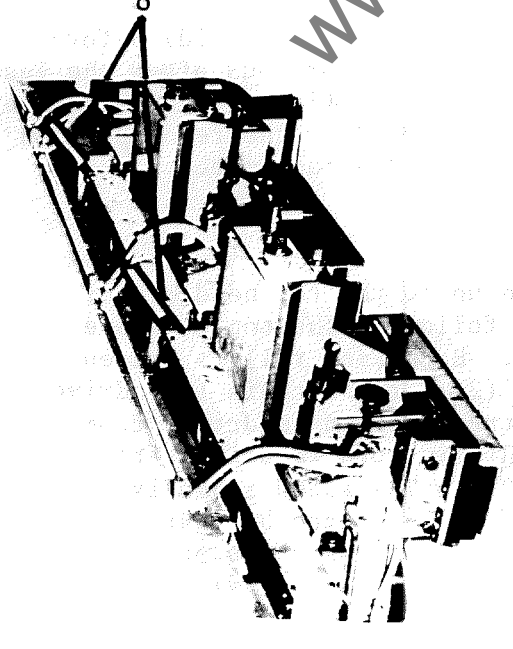
The rolls are pneumatically loaded by means of air cylinders (7) adjustment to the stroke of which is made by slackening or tightening the nut (8). The rolls are flange mounted affording the minimum of projection and advantage when hand feeding stock at the straightening head and at the side heads when employing narrow stock. The working height of all the feed rolls can be adjusted simultaneously from a single handwheel (9) at the infeed end of the machine or those following the top horizontal head(s) can be adjusted independently from an integral ratchet spanner(s) (o) situated at the rear of the machine on the beam roll lateral adjustment slide adjacent to the top horizontal head. When the rolls are raised by the pneumatic controls at control station (10) all rolls lift to a maximum height of 120mm above the bed thus giving easy access for setting up purposes. However, the downward pressure on the roll (1a) before the straightening head is independently controlled from (15).

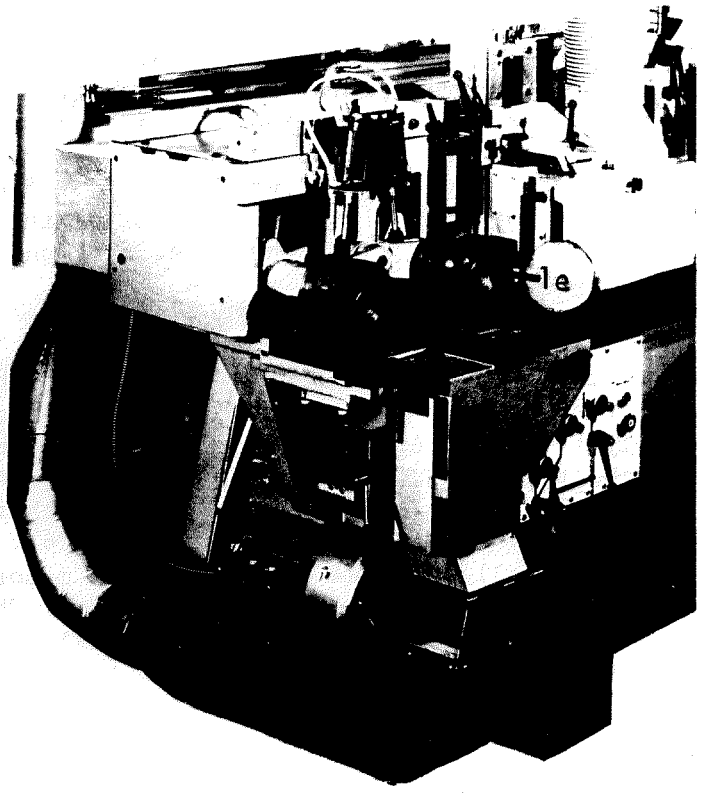
The control station (10) houses the pneumatic controls for the feed rolls (1). (11) is a calibrated scale graduated from 0-120mm in increments of 5mm, this works in conjunction with a pointer (12) which traverses over the scale as the handwheel (9) is operated to accommodate varying thicknesses of timber. (13) is the air pressure gauge for the pressure roller (1a) before the straightening head (14) is the attendant pressure regulator whilst (15) is the control for initiating the raise and lower movements to the rollers. (16) is the air pressure gauge for the pair of pressure rollers (12) after the straightening head and before the first fence side head. (17) is the pressure regulator for these rollers. (18) is the control. (19) is the air pressure gauge and (20) its attendant pressure regulator for the pair of rollers (1c) before the near side head and before the second fence side head and single pressure roller (1d) before the first top head and a pair of pressure rollers (1e) before and after the last bottom head. The raising and lowering of the rolls (1b), (1c), (1d)and (1e) is carried out by control (18). (21) is a tachometer recording the feed speed in metres per minute (22) is the counting transducer for the tachometer.

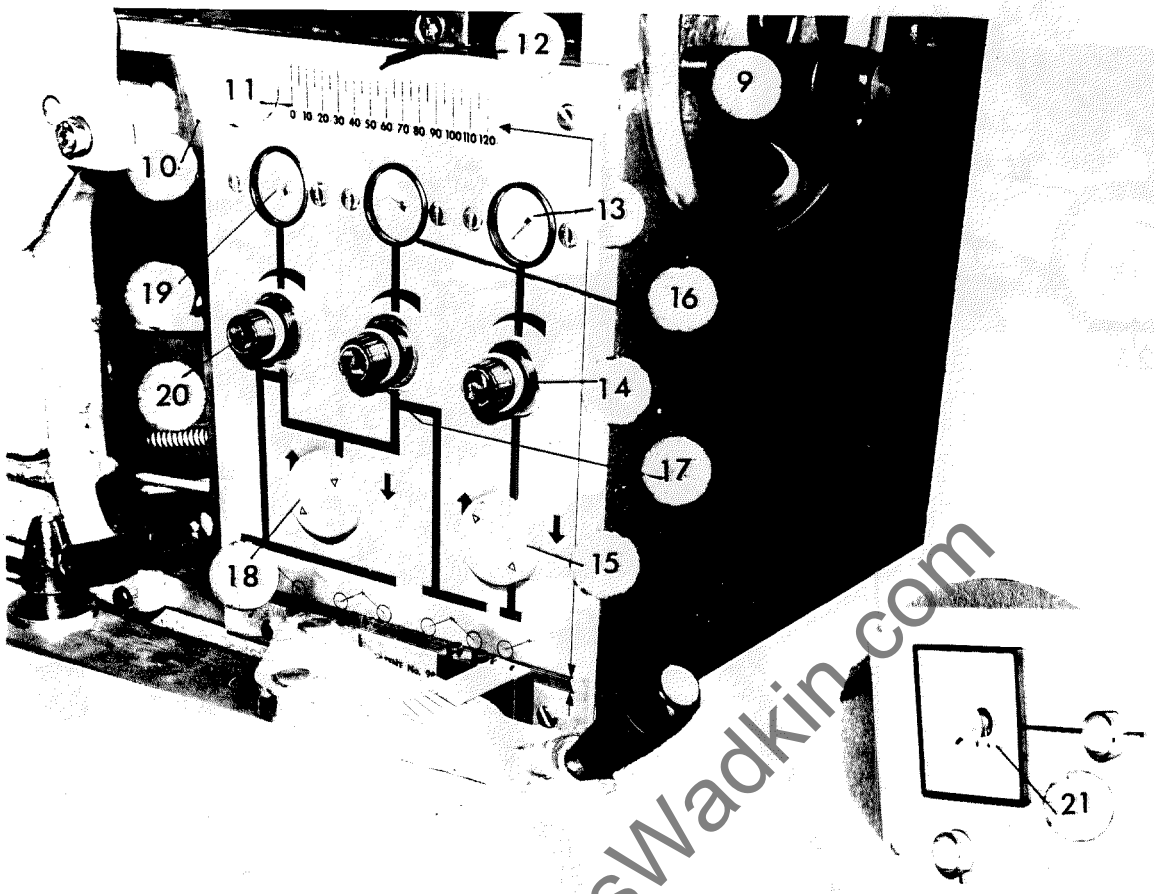
THE FEEDWORKS DRIVE AND FEED ROLLS.

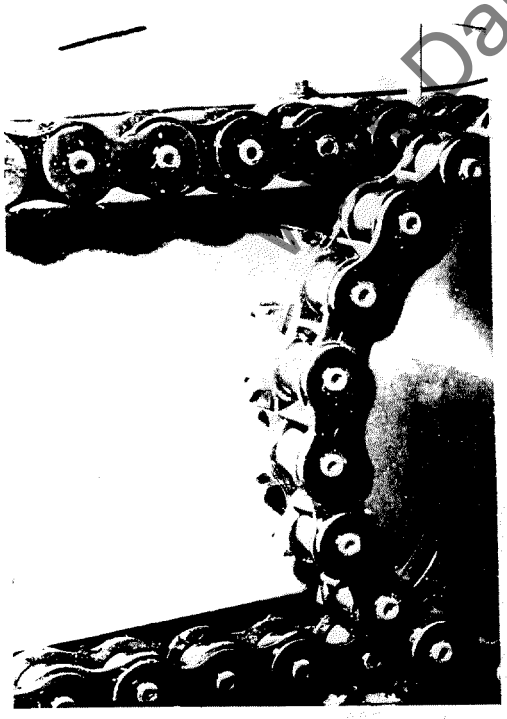
All rolls are 140mm (5.51 ins.) diameter. Those up to the top head are of cast iron and have 30° spiral cut teeth. Those following the top roll are of polyurethane. All rolls are interchangeable. Each Feed roll is driven by a shaft (23) through double universal joints (24) from a chain (25) driven from the infeed end of the machine. The chain transmission is driven from an infinitely variable speed gear unit (26). This in turn is driven from a 2.2 kW (3 h.p.) squirrel cage induction motor (27). The speed range is 6 to 43 metres (20 to 140 feet) per minute. The feed motor can be started 'jogged' or stopped by buttons (28), (29) and (30), the jog and stop buttons are duplicated at the outfeed end of the machine and the speed adjusted by the handwheel (31) at the front of the machine.

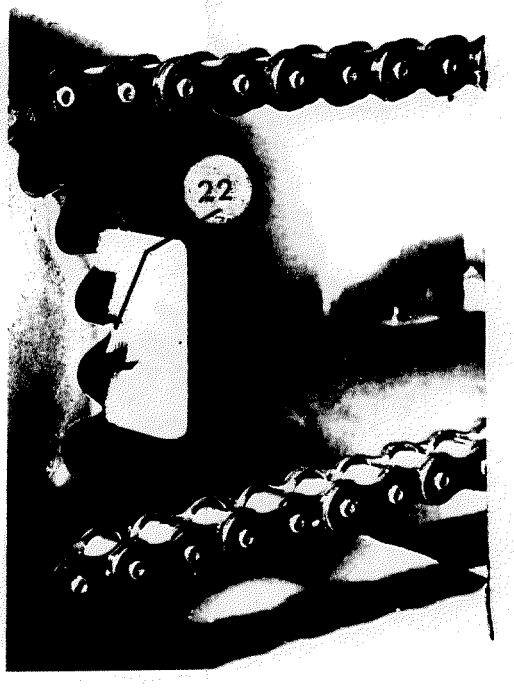


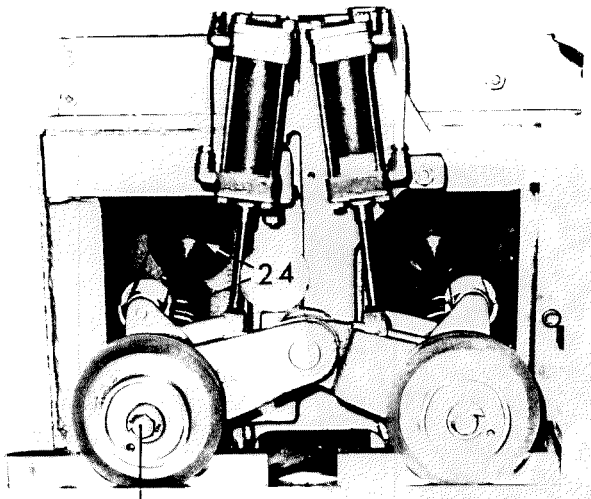


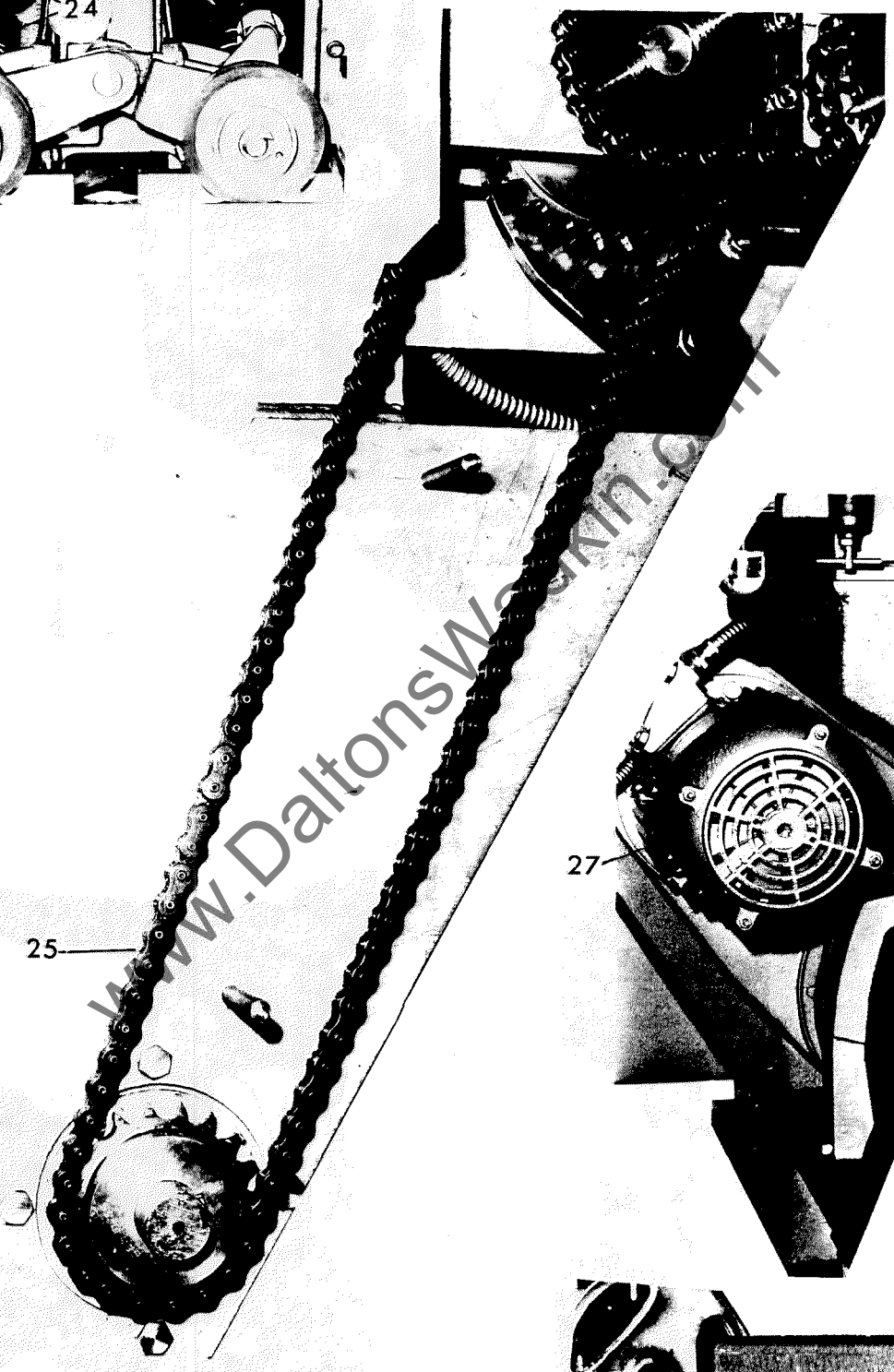


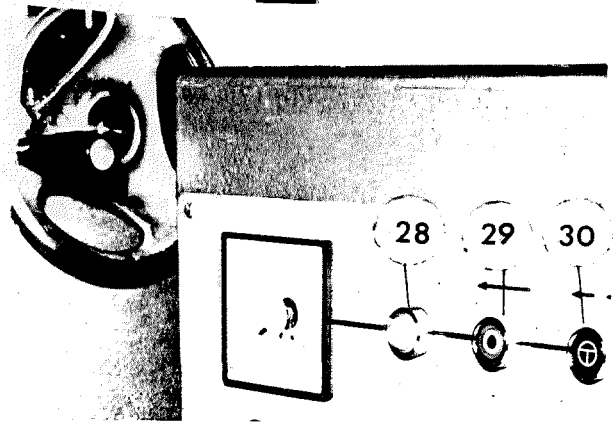












BEDPLATES

The Steel Bedplates are chromium plated and can be readily replaced. The following pages itemise these by model designation.

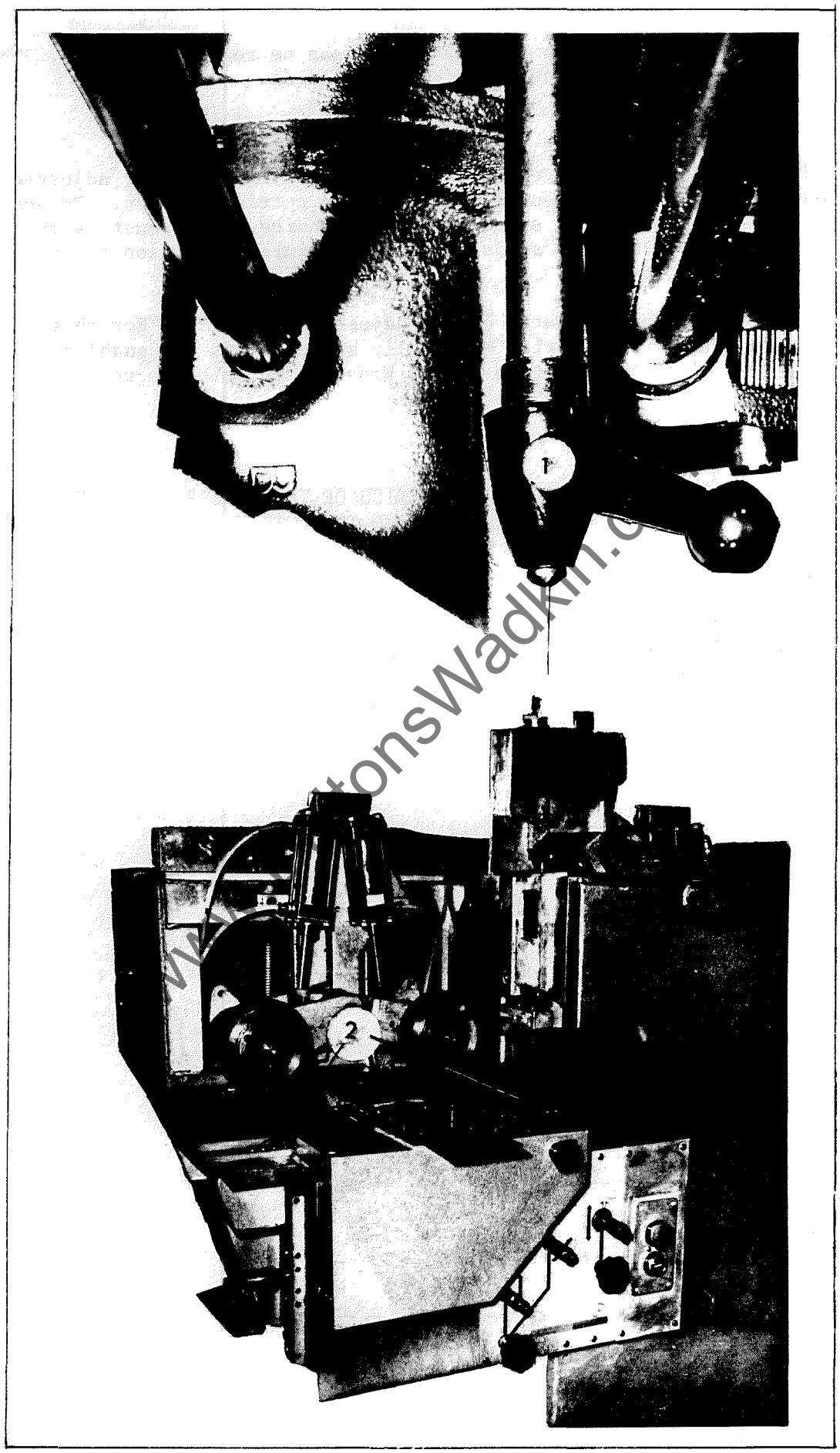
ADJUSTMENT

The Bedplates of the side (vertical) heads can be transversely adjusted by an amount of up to 50mm to accommodate various cutting circles. To achieve this, the locking lever (1) situated in the machine cavity must be released, this allows the operator to slide the bedplate into a position to suit the required cutting circles.

Where applicable, the bedplates can be adjusted laterally. For this purpose, they are provided with a series of equally spaced holes (2) enabling the bedplates to be positioned by the locating screws provided to suit the required cutting circle.

IMPORTANT:

TO OBTAIN THE OPTIMUM RESULTS IN THE FINISH OF THE TIMBER IT IS RECOMMENDED THAT THE BEDPLATES ARE LOCATED AS CLOSE TO THE CUTTING KNIVES AS IS CONSISTENT WITH SAFETY.



BEDPLATES

MODEL No.	Head Sequence and Number			
	1	3	4	5
1	Btm.	Fence	Near	Top

	Bedplate Part No.	
Between the first Bottom Horizontal Head and the Fence Side Vertical Head.	GEM 3861	
For the First Fence Side Vertical Head	GEM 3862	
Between the First Fence Side Vertical Head and the Near Side Vertical Head	GEM 3863	
For the Near Side Vertical Head	GEM 3867	
Between the Near Side Vertical Head and the First Top Head	GEM 3944	
Under the First Top Horizontal Head	GEM 3869	(Permali)
Between the First Top Horizontal Head and the Outfeed Table	GEM 3825	

BEDPLATES

MODEL	Head Sequence and Number				
No.	1	3	4	5	7
2	Btm.	Fence	Near	Top	Btm.

	Bedplate Part No.
Between the First Bottom Horizontal Head and the Fence Side Vertical Head	GEM 3861
For the First Fence Side Vertical Head	GEM 3862
Between the First Fence Side Vertical and the Near Side Vertical Head	GEM 3863
For the Near Side Vertical Head	GEM 3867
Between the Near Side Vertical Head and the First Top Head	GEM 3944
Under the First Top Horizontal Head	GEM 3869 (Permali)
Between the First Top Head and the second Bottom Head	GEM 3870
After the Second Bottom Head	GEM 3856

BEDPLATES

MODEL	Head Sequence and Number				
No.	1	3	4	10	5
1S	Btm.	Fence	Near	Fence	Top

	Bedplate Part No.	
Between the first Bottom Head and the Fence Side Vertical Head	GEM 3861	
For the First Fence Side Vertical Head	GEM 3862	
Between the First Fence Side Vertical and Near Side Vertical Head	GEM 3863	
For the Near Side Vertical Head	GEM 3867	
Between the Near Side Vertical Head and the Second Fence Side Vertical Head	GEM 3864	
For the Second Fence Side Vertical Head	GEM 3862	
Between the Second Fence Side Vertical Head and the First Top Horizontal Head	GEM 3866	
Under the First Top Horizontal Head	GEM 3869	(Permali)
Between the First Top Horizontal Head and the Outfeed Table	GEM 3825	

BEDPLATES

MODEL	Head and Sequence Number				
No.	1	3	4	5	6
3	Btm.	Fence	Near	Top	Top

	Bedplate Part No.
Between the First Bottom Horizontal Head and the Fence Side Vertical Head	GEM 3861
For the First Fence Side Vertical Head	GEM 3862
Between the First Fence Side Vertical Head and the Near Side Vertical Head	GEM 3863
For the Near Side Vertical Head	GEM 3867
Between the Near Side Vertical Head and the First Top Head	GEM 3944
Between the First Top Horizontal Head and the Second Top Horizontal Head	GEM 3871
Under the Second Top Horizontal Head	GEM 3869 (Permali)
Between the Second Top Horizontal Head and the Outfeed Table	GEM 3825

BEDPLATES

MODEL	Head Sequence and Number					
No.	1	3	4	10	5	7
2S	Btm.	Fence	Near	Fence	Top	Btm.

	Bedplate Part No.	
Between the First Bottom Head and the Fence Side Vertical Head	GEM 3861	
For the First Fence Side Vertical Head	GEM 3862	
Between the First Fence Side Vertical and Near Side Vertical Head	GEM 3863	
For the Near Side Vertical Head	GEM 3867	
Between the Near Side Vertical Head and the Second Fence Side Vertical Head	GEM 3864	
For the Second Fence Side Vertical Head	GEM 3862	
Between the Second Fence Side Vertical Head and the First Top Horizontal Head	GEM 3866	
Under the First Top Horizontal Head	GEM 3869	(Permali)
Between the First Top Horizontal Head and the Second Bottom Horizontal Head	GEM 3870	
Between the Second Bottom Horizontal Head and the Outfeed Table	GEM 3856	

BEDPLATES

MODEL	Head Sequence and Number					
No.	1	3	4	5	6	7
4	Btm.	Fence	Near	Top	Top	Btm.

	Bedplate Part No.
Between the First Bottom Horizontal Head and the Fence Side Vertical Head	GEM 3861
For the First Fence Side Vertical Head	GEM 3862
Between the First Fence Side Vertical Head and the Near Side Vertical Head	GEM 3863
For the Near Side Vertical Head	GEM 3867
Between the Near Side Vertical Head and the First Top Head	GEM 3944
Between the First Top Horizontal Head and the Second Top Horizontal Head	GEM 3871
Under the Second Top Horizontal Head	GEM 3869 (Permali)
Between the Second Top Horizontal Head and the Second Bottom Horizontal Head	GEM 3870
Between the Second Bottom Horizontal Head and the Outfeed Table	GEM 3856

BEDPLATES

MODEL No.	Head Sequence and Number					
	1	3	4	10	5	6
3S	Btm.	Fence	Near	Fence	Top	Top

	Bedplate Part No.
Between the First Bottom Head and the Fence Side Vertical Head	GEM 3861
For the First Fence Side Vertical Head	GEM 3862
Between the First Fence Side Vertical and Near Side Vertical Head	GEM 3863
For the Near Side Vertical Head	GEM 3867
Between the Near Side Vertical Head and the Second Fence Side Vertical Head	GEM 3864
For the Second Fence Side Vertical Head	GEM 3862
Between the Second Fence Side Vertical Head and the First Top Horizontal Head	GEM 3868
Between the First Top Horizontal Head and the Second Top Horizontal Head	GEM 3871
Under the Second Top Horizontal Head	GEM 3869 (Permali)
Between the Second Top Horizontal Head and the Outfeed Table	GEM 3825

BEDPLATES

MODEL	Head Sequence and Number						
No.	1	3	4	10	5	6	7
4S	Btm.	Fence	Near	Fence	Top	Top	Btm.

	Bedplate Part No.
Between the First Bottom Head and the Fence Side Vertical Head	GEM 3861
For the First Fence Side Vertical Head	GEM 3862
Between the First Fence Side Vertical and Near Side Vertical Head	GEM 3863
For the Near Side Vertical Head	GEM 3867
Between the Near Side Vertical Head and the Second Fence Side Vertical Head	GEM 3863
For the Second Fence Side Vertical Head	GEM 3862
Between the Second Fence Side Vertical Head and the First Top Horizontal Head	GEM 3868
Between the First Top Horizontal Head and the Second Top Horizontal Head	GEM 3871
Under the Second Top Horizontal Head	GEM 3869 (Permali)
Between the Second Top Horizontal Head and Second Bottom Horizontal Head	GEM 3870
After the Second Bottom Horizontal Head	GEM 3856

BEDPLATES

MODEL No.	Head Sequence and Number				
	1	3	4	5	8
1U	Btm.	Fence	Near	Top	Univ.

	Bedplate Part No.
Between the First Bottom Horizontal Head and the Fence Side Vertical Head	GEM 3861
For the First Fence Side Vertical Head	GEM 3862
Between the First Fence Side Vertical Head and the Near Side Vertical Head	GEM 3863
For the Near Side Vertical Head	GEM 3867
Between the Near Side Vertical Head and the First Top Head	GEM 3944
Under the First Top Horizontal Head	GEM 3869 (Permali)
When the Universal Head is in the side head (vertical) position Bedplate between the First Top Head and the Universal Head	GEM 3947
After the Universal Head and before the outfeed table	GEM 3913 (Steel) or GEM 3914 (TUFNOL)
After the Universal Head in Side Head (Vertical) position	GEM 3910
When the Universal Head is in the Bottom Head (Horizontal) Position Bedplate between the first top head and the Universal Head	GEM 3946
After the Universal Head	GEM 3909

BEDPLATES

MODEL	Head Sequence and Number					
No.	1	3	4	10	5	8
1SU	Btm.	Fence	Near	Fence	Top	Univ.

	Bedplate Part No.
Between the First Bottom Head and the Fence Side Vertical Head	GEM 3861
For the First Fence Side Vertical Head	GEM 3862
Between the First Fence Side Vertical and Near Side Vertical Head	GEM 3865
For the Near Side Vertical Head	GEM 3867
Between the Near Side Vertical Head and the Second Fence Side Vertical Head	GEM 3863
For the Second Fence Side Vertical Head	GEM 3862
Between the Second Fence Side Vertical Head and the First Top Horizontal Head	GEM 3868
Under the First Top Horizontal Head	GEM 3869 (Permali)
When the Universal Head is in the Side (vertical) Position Between the First Top and the Universal Head	GEM 3947
After the Universal Head and before the Outfeed Table either	GEM 3913 (Steel)
or	GEM 3914 (Tufnol)
After the Universal Side (Vertical) Position	GEM 3910
When the Universal Head is in the Bottom Horizontal Position Between the First Top Head and the Universal Head	GEM 3946
After the Universal Head	GEM 3909

BEDPLATES

MODEL No.	Head Sequence and Number					
	1	3	4	5	7	8
2U	Btm.	Fence	Near	Top	Btm.	Univ.

	Bedplate Part No.
Between the First Bottom Horizontal Head and the Fence Side Vertical Head	GEM 3861
For the First Fence Side Vertical Head	GEM 3862
Between the First Fence Side Vertical and the Near Side Vertical Head	GEM 3863
For the Near Side Vertical Head	GEM 3867
Between the Near Side Vertical Head and the First Top Head	GEM 3944
Under the First Top Horizontal Head	GEM 3869 (Permali)
Between the First Top Head and the Second Bottom Head	GEM 3870

The selection of the bedplate between the second bottom head and the Universal Head is open to choice depending upon the cutting circle diameter and projection of the cutter, these have been designated as 'Long' and 'Short'. The former is more commonly employed.

When the Universal Head is in the Side (Vertical) Position	
Between the Second Bottom Head and the Universal Head	
'Long' Bedplate	GEM 3911
'Short' Bedplate	GEM 3912
After the Universal Head and before the Outfeed Table	GEM 3913 (Steel)
or	GEM 3914 (Tufnol)
After the Universal Head Side (Vertical) Position	GEM 3910
When the Universal Head is in the Bottom Horizontal Position	
Between the second Bottom Head and the Universal Head	
'Long' bedplate	GEM 3908
'Short' bedplate	GEM 3915
After the Universal Head	GEM 3909

BEDPLATES

MODEL	Head Sequence and Number						
No.	1	3	4	10	5	7	8
2SU	Btm.	Fence	Near	Fence	Top	Btm.	Univ.

	Bedplate Part No.
Between the First Bottom Head and the Fence Side Vertical Head	GEM 3861
For the First Fence Side Vertical Head	GEM 3862
Between the First Fence Side Vertical and Near Side Vertical Head	GEM 3863
For the Near Side Vertical Head	GEM 3867
Between the Near Side Vertical Head and the Second Fence Side Vertical Head	GEM 3863
For the Second Fence Side Vertical Head	GEM 3862
Between the Second Fence Side Vertical Head and the First Top Horizontal Head	GEM 3866
Under the First Top Horizontal Head	GEM 3869 (Permali)
Between the First Top Horizontal Head and the Second Bottom Horizontal Head	GEM 3870

The Selection of the Bedplate between the Second Bottom Head and the Universal Head is open to choice dependent upon the cutting circle diamter and projection of the Cutter, these have been designated as 'Long' and 'Short' The former is more commonly employed.

When the Universal Head is in the Side (Vertical) Position

Between the second bottom head and the Universal Head		
'Long' Bedplate		GEM 3911
'Short' Bedplate		GEM 3912
After the Universal Head and before the Outfeed Table	or	GEM 3913 (Steel) GEM 3914 (Tufnol)
After the Universal Head Side (Vertical) position		GEM 3910

When the Universal Head is in the bottom Horizontal position

Between the second bottom head position and the universal head		
'Long' bedplate		GEM 3908
'Short' bedplate		GEM 3915

The choice being dependent upon the cutting circle dia. and projection of the cutter, these have been designated as 'Long' and 'Short'. The former is more commonly employed

After Universal Head	GEM 3909

BEDPLATES

MODEL	Head Sequence and Number					
No.	1	3	4	5	6	8
3U	Btm.	Fence	Near	Top	Top	Univ.

	Bedplate Part No.
Between the First Bottom Head and the Fence Side Vertical Head	GEM 3861
For the First Fence Side Vertical Head	GEM 3862
Between the First Fence Side Vertical and Near Side Vertical Head	GEM 3863
For the Near Side Vertical Head	GEM 3867
Between the Near Side Vertical Head and the First Top Horizontal Head	GEM 3944
Between the First Top Horizontal Head and the Second Top Horizontal Head	GEM 3871
Under the Second Top Horizontal Head	GEM 3869 (Permali)
When the Universal Head is in the Side (vertical) Position Between the Second Top Head and the Universal Head	GEM 3947
After the Universal Head and Before the Outfeed Table	GEM 3913 (Steel) or GEM 3914 (Tufnol)
After the Universal Side (Vertical) Position	GEM 3910
When the Universal Head is in the Bottom Horizontal Position Between the Second Top Head and the Universal Head	GEM 3946
After the Universal Head	GEM 3909

BEDPLATES

MODEL No. 3SU	Head Sequence and Number						
	1	3	4	10	5	6	8
	Btm.	Fence	Near	Fence	Top	Top	Univ.

	Bedplate Part No.
Between the First Bottom Head and the Fence Side Vertical Head	GEM 3861
For the First Fence Side Vertical Head	GEM 3862
Between the First Fence Side Vertical and Near Side Vertical Head	GEM 3863
For the Near Side Vertical Head	GEM 3867
Between the Near Side Vertical Head and the Second Fence Side Vertical Head	GEM 3863
For the Second Fence Side Vertical Head	GEM 3862
Between the Second Fence Side Vertical Head and the First Top Horizontal Head	GEM 3866
Between the First Top Horizontal Head and the Second Top Horizontal Head	GEM 3871
Under the Second Top Horizontal Head	GEM 3869 (Permali)
When the Universal Head is in the Side (Vertical) or Top Vertical Position Bedplate between the second Top Horizontal Head and the Universal Head	GEM 3947
After the Universal Head and before the Outfeed Table	GEM 3913 (Steel)
or	GEM 3914 (Tufnol)
After the Universal Side (Vertical) Position in Top Horizontal Position	GEM 3910
When the Universal Head is in the Bottom Horizontal Position Bedplate between the Second Top Head and the Universal Head	GEM 3946
Bedplate after the Universal Head	GEM 3909

BEDPLATES

MODEL No.	Head Sequence and Number						
	1	3	4	5	6	7	8
4U	Btm.	Fence	Near	Top	Top	Btm.	Univ.

	Bedplate Part No.
Between the First Bottom Horizontal Head and the Fence Side Vertical Head	GEM 3861
For the First Fence Side Vertical Head	GEM 3862
Between the First Fence Side Vertical Head and the Near Side Vertical Head	GEM 3863
For the Near Side Vertical Head	GEM 3867
Between the Near Side Vertical Head and the First Top Head	GEM 3944
Between the First Top Horizontal Head and the Second Top Horizontal Head	GEM 3871
Under the Second Top Horizontal Head	GEM 3869 (Permali)
Between the Second Top Horizontal Head and the Second Bottom Horizontal Head	GEM 3870

The Selection of the Bedplate between the Second Bottom Head and the Universal Head is open to choice dependent upon the cutting circle diameter and projection of the cutter, these have been designated as 'Long' and 'Short'. The former is more commonly employed.

When the Universal Head is in the Side (Vertical) Position	
Between the Second Bottom Head and the Universal Head	
'Long' Bedplate	GEM 3911
'Short' Bedplate	GEM 3912
After the Universal Head and before the Outfeed Table	GEM 3913 (Steel)
or	GEM 3914 (Tufnol)
After the Universal Head Side (Vertical) Position	GEM 3910
When the Universal Head is in the bottom Horizontal Position	
Between the second Bottom Head and the Universal Head	
'Long' Bedplate	GEM 3908
'Short' Bedplate	GEM 3915
After the Universal Head	GEM 3909

BEDPLATES

MODEL	Head Sequence and Number							
No.	1	3	4	10	5	6	7	8
4SU	Btm.	Fence	Near	Fence	Top	Top	Btm.	Univ.

	Bedplate Part No.	
Between the First Bottom Head and the Fence Side Vertical Head	GEM 3861	
For the First Fence Side Vertical Head	GEM 3862	
Between the First Fence Side Vertical and Near Side Vertical Head	GEM 3863	
For the Near Side Vertical Head	GEM 3867	
Between the Near Side Vertical Head and the Second Fence Side Vertical Head	GEM 3863	
For the Second Fence Side Vertical Head	GEM 3862	
Between the Second Fence Side Vertical Head and the First Top Horizontal Head	GEM 3866	
Between the First Top Horizontal Head and the Second Top Horizontal Head	GEM 3871	
Under the Second Top Horizontal Head	GEM 3869	(Permali)
Between the Second Top Horizontal Head and the Second Bottom Horizontal Head	GEM 3870	

The Selection of the Bedplate between the second bottom head and the Universal Head is open to choice dependent upon the cutting circle diameter and projection of the cutter, these have been designated as 'Long' and 'Short'. The former is more commonly employed. When the Universal Head is in the Side (Vertical) Position. Between the Second Bottom Head and the Universal Head.

'Long' Bedplate	GEM 3911	
'Short' Bedplate	GEM 3912	
After the Universal Head and before the Outfeed Table	GEM 3913	(Steel)
	or GEM 3914	(Tufnol)
After the Universal Head Side (Vertical) Position	GEM 3910	

When the Universal Head is in the Bottom Horizontal Position

Between the Second Bottom Head and the Universal Head		
'Long' Bedplate	GEM 3908	
'Short' Bedplate	GEM 3915	
After the Universal Head	GEM 3909	

GROOVED BED

Grooved bedplates are particularly advantageous when straightening short twisted lengths of hardwood. When used in this capacity, the grooved bedplates are employed in conjunction with groove cutters on the first bottom head and a finger plate fitted between the infeed table and that head.

In operation, timber is fed over the infeed table and presented on the finger plate to the first bottom head, where grooves are cut into the underface of the timber. During this operation, the interlocking feature of the finger plate and the groove cutters prevents dipping of the timber and provides a guide on to the first grooved bedplate.

On the outfeed side of the first bottom head, the grooved underface of the timber locates in the first grooved bed plate. Although only one groove in each bedplate provides a close tolerance location in the timber, the others are provided with a degree of clearance to ensure smooth feed, the timber is now provided with a high degree of stability for presentation to the next cutter head.

GROOVED BED

NOTE:

A GROOVED BED IS NOT AVAILABLE FOR THE FOLLOWING MODELS:-

1, 1S, 1U, 1SU or 3, 3S, 3U, 3SU

IN ALL MODELS WHERE THE GROOVED BED IS OFFERED THE FINGER PLATE OVER THE STRAIGHTENING HEAD IS COMMON.

THE INDIVIDUAL PARTS ARE AS FOLLOWS:-

THE WHOLE COMPLEMENT REPRESENTS AN ASSEMBLY AND SHOULD A REPLACEMENT BE REQUIRED IT IS ESSENTIAL THAT A COMPLETE ASSEMBLY BE PURCHASED.

	Quantity	Part No.
Finger over straightening head for Grooved Bedplates	1	GEM 3940
Fingers over Straightening Head for Grooved Bedplates	9	GEM 3945
Clamping Plate for Fingers over Straightening Head	1	GEM 3936
Spacing Plates for fingers over Straightening Head	7	GEM 3933
Spacing Plates for finger over Straightening Head	2	GEM 3932
Tie Bar for Fingers over Straightening Head	2	GEM 3936
M6 x 35mm Long Socket Head Cap Screws for GEM 3936	4	KO5 25 169
8mm dia. washer for GEM 3469	2	KO5 28 103
M8 Hex. Head nut for GEM 3469	2	KO5 27 102
Baffle plate for first Bottom Horizontal Head Grooved Bed	1	GEM 3917

BEDPLATES (GROOVED)

MODEL No. 2	Head Sequence and Number				
	1	3	4	5	7
	Btm.	Fence	Near	Top	Btm.

	Bedplate Part No.
Grooved Bedplate after First Bottom (Straightening) Head	GEM 3837
Grooved Bedplate for the Near Side Vertical Head Rear Grooved Bedplate	GEM 3478
Front Grooved Bedplate	GEM 3479
Plate to carry Near Side Head Chipbreaker for Grooved Bedplates	GEM 3480
Grooved Bedplate between Near Side Vertical Head and before first Top Horizontal Head	GEM 3926
Grooved Bedplate between the First Top Horizontal Head and the Second Bottom Horizontal Head	GEM 3920
After Second Bottom Head	GEM 3187

BEDPLATES (GROOVED)

MODEL No. 2S	Head Sequence and Number					
	1	3	4	10	5	7
	Btm.	Fence	Near	Fences	Top	Btm.

	Bedplate Part No.
Grooved Bedplate after the First Bottom (Straightening) Head	GEM 3837
Grooved Bedplate for the Near Side Vertical Head Rear Grooved Bedplate	GEM 3478
Front Grooved Bedplate	GEM 3479
Plate to carry Near Side Head Chipbreaker for Grooved bedplates	GEM 3480
Grooved Bedplate opposite the Second Fence Side Vertical Head and before first Top Horizontal Head	GEM 4201
Grooved Bedplate under 1st Top Horizontal Head	GEM 3927
Grooved Bedplates between the First Top Horizontal Head and the Second Bottom Horizontal Head (Fixed)	GEM 3920
ditto (Adjustable)	GEM 3919
After Second Bottom Head	GEM 3187

BEDPLATES (GROOVED)

MODEL No. 4	Head Sequence and Number					
	1	3	4	5	6	7
	Btm.	Fence	Near	Top	Top	Btm.

	Bedplate Part No.
Grooved Bedplate after the First Bottom (Straightening) Head	GEM 3837
Grooved Bedplate for Near Side Vertical Head Rear Grooved Bedplate	GEM 3478
Front Grooved Bedplate	GEM 3479
Plate to carry Near Side Head Chipbreaker for grooved bedplates	GEM 3480
Grooved Bedplate between Near Side Vertical Head and before first Top Horizontal Head	GEM 3926
Grooved Bedplate under the First Top Horizontal Head and the Second Top Horizontal Head and before the Second Bottom Horizontal Head	GEM 3918
* After the Second Bottom Horizontal Head	GEM 3187
*Grooved Bedplate (Fixed) before second bottom horizontal head	GEM 3920
Grooved Bedplate (adjustable) " " "	GEM 3919

BEDPLATES (GROOVED)

MODEL No. 4S	Head Sequence and Number						
	1	3	4	10	5	6	7
	Btm.	Fence	Near	Fence	Top	Top	Btm.

	Bedplate Part No.
Grooved Bedplate after the First Bottom (Straightening) Head and the Fence Side Vertical Head	GEM 3937
Grooved Bedplate for Near Side Vertical Head	GEM 3478
Rear Grooved Bedplate	GEM 3479
Front Grooved Bedplate	GEM 3480
Plate to carry Near Side Head Chipbreaker for Grooved Bedplates	GEM 4201
Grooved Bedplate opposite Second Fence Side Vertical Head and before first Top Horizontal Head	GEM 3918
Grooved Bedplate under the First Top Horizontal Head and the Second Top Horizontal Head	GEM 3920
Grooved Bedplate after second Top Horizontal Head and before second Bottom Horizontal Head (Fixed)	GEM 3919
Alternative Grooved Bedplate after second Top Horizontal Head and before second Bottom Horizontal (Adjustable)	GEM 3187
After the Second Bottom Horizontal Head	

BEDPLATES (GROOVED

MODEL No. 2U	Head Sequence and Number					
	1	3	4	5	7	8
	Btm.	Fence	Near	Top	Btm.	Univ.

Bedplate Part No.

Grooved Bedplate after the First Bottom Head (straightening) — GEM 3837

Grooved Bedplate for Near Side Vertical Head — GEM 3478

Rear Grooved Bedplate — GEM 3479

Front Grooved Bedplate

Plate to carry Near Side Head Chipbreaker for Grooved Bedplates — GEM 3480

Grooved Bedplate between Near Side Vertical Head and before First Top Horizontal Head — GEM 3926

Grooved Bedplate between the First Top Horizontal Head and the Second Bottom Horizontal Head — GEM 3920

The Selection of the Bedplate between the Second Bottom Head and the Universal Head is open to choice dependent upon the cutting circle diameter and projection of the cutter, these have been designated as 'Long' and 'Short'. The former is more commonly employed.

When the Universal Head is in the Side (Vertical) Position Between the second bottom head and the Universal Head

'Long' bedplate — GEM 3911

'Short' bedplate — GEM 3912

After the Universal Head and before the Outfeed Table — GEM 3913 (Steel) or GEM 3914 (Tufnol)

After the Universal Head Side (Vertical) position — GEM 3910

When the Universal Head is in the Bottom Horizontal position Between the 'Second' bottom head position and the universal head

'Long' bedplate — GEM 3908

'Short' bedplate — GEM 3915

The choice being dependent upon the cutting circle diameter and projection of the cutter, these have been designated as 'Long' and 'Short'. The former is more commonly employed.

After Universal Head — GEM 3909

BEDPLATES (GROOVED)

MODEL No. 2SU	Head Sequence and Number						
	1	3	4	10	5	7	8
	Btm.	Fence	Near	Fence	Top	Btm.	Univ.

	Bedplate Part No.
Grooved Bedplate after the First Bottom Head (straightening)	GEM 3837
Grooved Bedplate for Near Side Vertical Head Rear Grooved Bedplate	GEM 3478
Front Grooved Bedplate	GEM 3479
Plate to carry Near Side Head Chipbreaker for Grooved Bedplates	GEM 3480
Grooved Bedplate opposite second Fence Side Vertical Head and before First Top Horizontal Head	GEM 4201
Grooved Bedplate between the First Top Horizontal Head and the Second Bottom Horizontal Head	GEM 3920
The Selection of the Bedplate between the Second Bottom Head and the Universal Head is open to choice dependent upon the cutting circle diameter and projection of the Cutter, these have been designated as 'Long' and 'Short' The former is more commonly employed.	
When the Universal Head is in the Side(Vertical) Position Between the second bottom head and the Universal Head	
'Long' bedplate	GEM 3911
'Short' Bedplate	GEM 3912
After the Universal Head and before the Outfeed Table	GEM 3913 **(Steel)** or GEM 3914 **(Tufnol)**
After the Universal Head Side (Vertical) position	GEM 3910
When the Universal Head is in the Bottom Horizontal position Between the 'Second' bottom head position and the Universal head	
'Long'Bedplate	GEM 3908
'Short' bedplate	GEM 3915

The choice being dependent upon the cutting circle diameter and projection of the cutter, these have been designated as 'Long' and 'Short'. The former is more commonly employed.

After Universal Head	GEM 3909

BEDPLATES (GROOVED)

MODEL No. 4U	Head Sequence and Number						
	1	3	4	5	6	7	8
	Btm.	Fence	Near	Top	Top	Btm.	Univ.

	Bedplate Part No.
Grooved Bedplate after the First Bottom (Straightening) Head and the Fence Side Vertical Head	GEM 3937
Grooved Bedplate for Near Side Vertical Head Rear Grooved Bedplate	GEM 3478
Front Grooved Bedplate	GEM 3479
Plate to carry Near Side Head Chipbreaker for grooved bedplates	GEM 3480
Grooved Bedplate between Near Side Vertical Head and before first Top Horizontal Head	GEM 3926
Grooved bedplated under the First Top Horizontal Head and the Second Top Horizontal Head and before the second bottom Horizontal Head	GEM 3918
The Selection of the Bedplate between the second bottom head and the Universal Head is open to choice dependent upon the cutting circle diameter and projection of the cutter, these have been designated as 'Long' and 'Short'. The former is more commonly employed. When the Universal Head is in the Side Vertical Position. Between the Second Bottom Head and the Universal Head 'Long' Bedplate	GEM 3911
'Short' Bedplate	GEM 3912
After the Universal Head and before the Outfeed Table	GEM 3913 (Steel)
or	GEM 3914 (Tufnol)
After the Universal Head Side (Vertical) Position	GEM 3910
When the Universal Head is in the Bottom Horizontal Position Between the Second Bottom Head and the Universal Head 'Long' Bedplate	GEM 3908
'Short' Bedplate	GEM 3915
After the Universal Head	GEM 3613

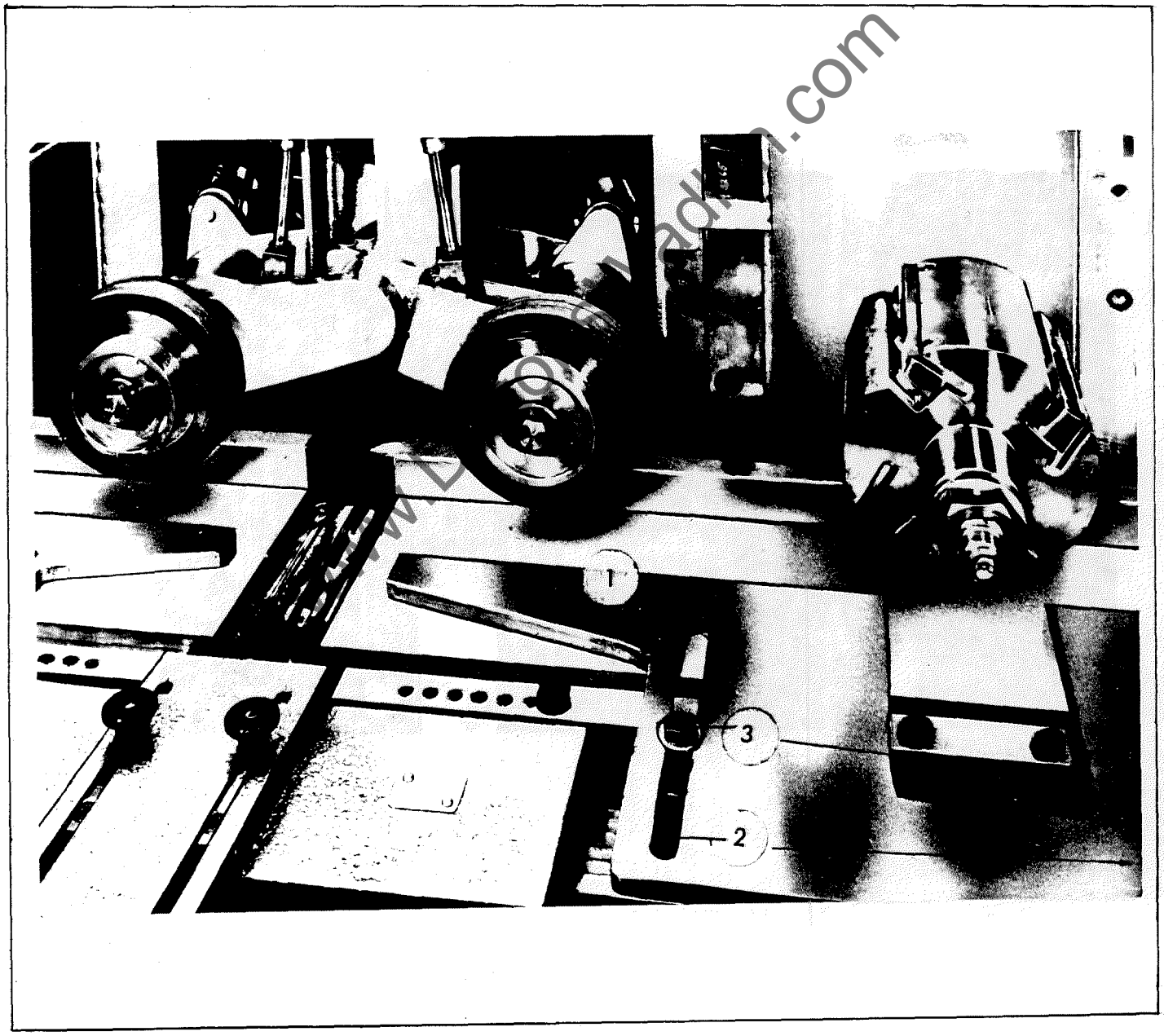
BEDPLATES (GROOVED)

MODEL No. 4SU	Head Sequence and Number							
	1	3	4	10	5	6	7	8
	Btm.	Fence	Near	Fence	Top	Top	Btm.	Univ.

	Bedplate Part No.
Grooved Bedplate after the First Bottom (Straightening) Head and the Fence Side Vertical Head	GEM 3837
Grooved Bedplate for Near Side Vertical Head Rear Grooved Bedplate	GEM 3478
Front Grooved Bedplate	GEM 3479
Plate to carry Near Side Head Chipbreaker for Grooved Bedplates	GEM 3480
Grooved Bedplate opposite Second Fence Side Vertical Head and before first Top Horizontal Head	GEM 4201
Grooved Bedplate under the First Top Horizontal Head and the Second Top Horizontal Head	GEM 3918
Grooved Bedplate after second Top Horizontal Head and before second Bottom Horizontal Head (Fixed)	GEM 3920
Alternative Grooved Bedplate after second Top Horizontal Head and before second Bottom Horizontal (Adjustable)	GEM 3919
The Selection of the Bedplate between the second bottom head and the Universal Head is open to choice dependent upon the cutting circle diameter and projection of the cutter, these have been designated as 'Long' and 'Short'. The former is more commonly employed. When the Universal Head is in the Side (Vertical) Position. Between the Second Bottom Head and the Universal Head 'Long' Bedplate	GEM 3911
'Short' Bedplate	GEM 3912
After the Universal Head and before the Outfeed Table	GEM 3913 (Steel)
or	GEM 3914 (Tufnol)
After the Universal Head Side (Vertical) Position	GEM 3910
When the Universal Head is in the Bottom Horizontal Position Between the Second Bottom Head and the Universal Head 'Long' Bedplate	GEM 3908
'Short' Bedplate	GEM 3915
After the Universal Head	GEM 3909

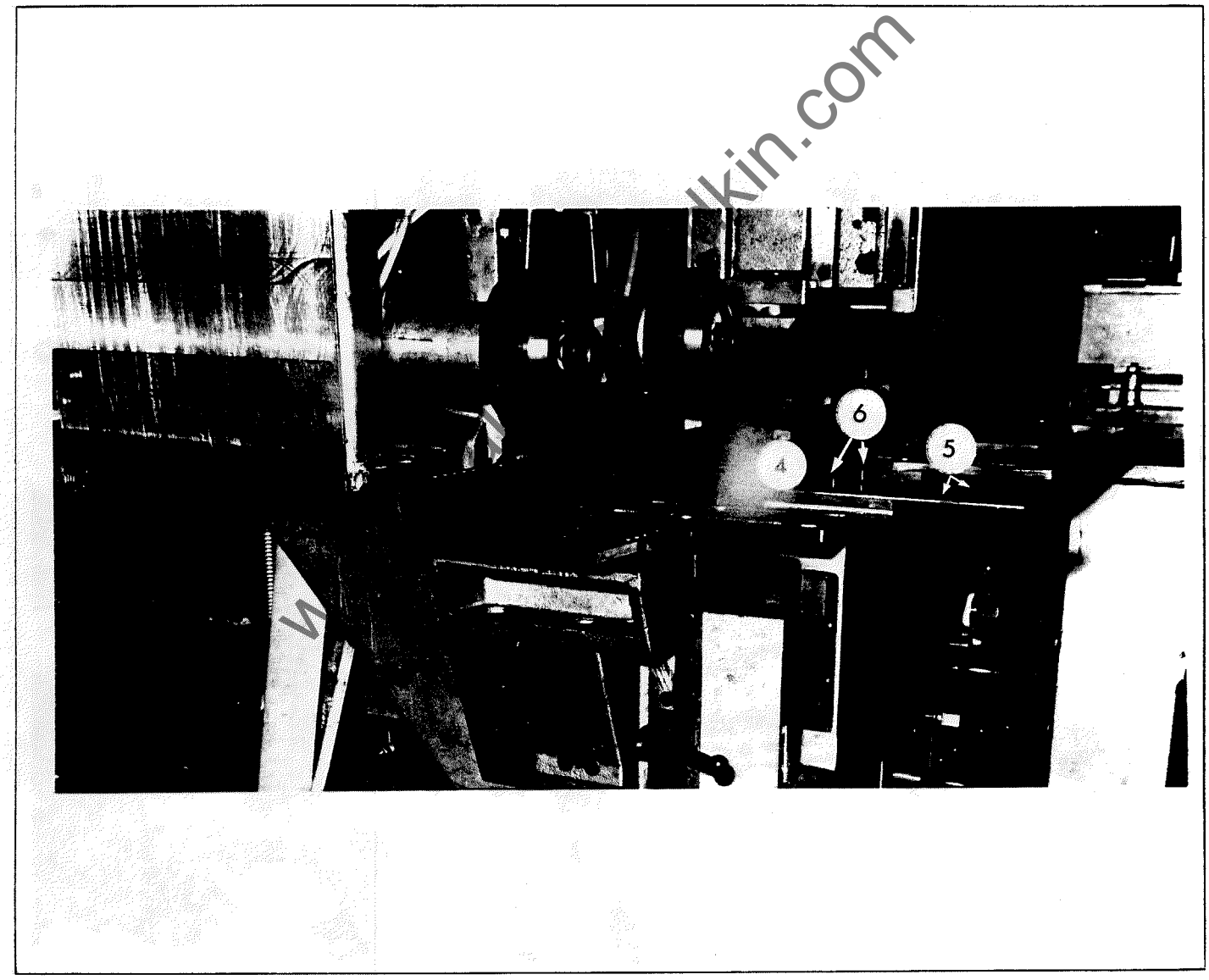
FRONT FENCES

The front fences which are adjustable are fitted immediately after the near side head. In their simplest form they are in two parts. The first fence (1) is fitted between the near side vertical head and either the first top horizontal head or the second bottom horizontal head dependent upon the model under consideration. This fence (1) can be adjusted transversely to suit the width of the timber undergoing machining. For this purpose two elongated slots (2) and two fixing bolts (3) are provided.



FRONT FENCES (cont.)

The second fence (4) is fitted between either the first top horizontal head or the second bottom horizontal head dependent upon the model under consideration and the outfeed table. This fence can also be adjusted transversely to suit the width of the timber undergoing machining. For this purpose two elongated slots (5) and two fixing bolts (6) are provided.



FRONT FENCE (cont.)

Machine with Second Top Horizontal Head or Through Top/Bottom Horizontal Head and Second Bottom Head.

A machine with this configuration of heads is supplied with three front fences The first fence is fitted between the near side vertical head and the first top horizontal head and can be adjusted in the same manner as described previously.

The second fence is fitted between the first top horizontal head and either the second top horizontal head or the through top/bottom horizontal head and the second bottom horizontal head dependent upon the machine under consideration.

The third fence is fitted between the second bottom horizontal head and the outfeed table. This fence is not illustrated but it is adjusted in a similar manner and by the same means as the other front fences.

FRONT FENCES (cont.)

MACHINES MODEL NUMBER 1U, 2U, 3U, 4U, 1SU, 2SU, 3SU, 4SU WITH UNIVERSAL HEAD.

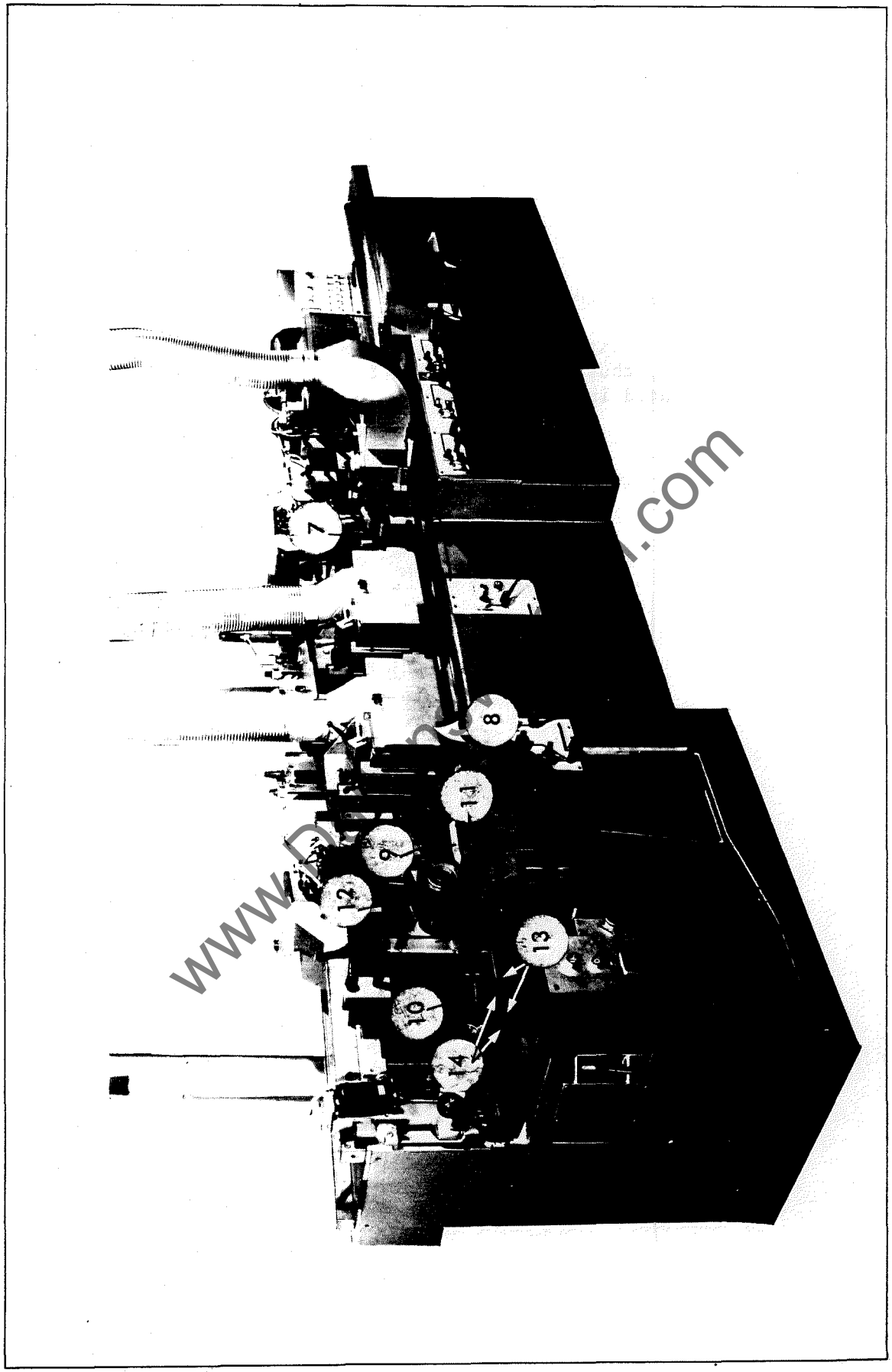
Machines with this configuration of heads are supplied with four front fences.

The first fence (7) fitted between the near side vertical head and the first top horizontal head and is adjusted in the same manner as described previously refer to page 91.

The second fence (8) is fitted between the first top horizontal head and either the second top horizontal head on the 'Through' top/bottom horizontal head and the second bottom horizontal head dependent upon the machine under consideration. This fence is not illustrated but is adjustable in a similar manner and by the same means as the other front fences.

The third fence (9) is fitted between the second bottom horizontal head and the universal head. This fence is also adjusted transversely to suit the width of the timber undergoing machining. For this purpose two elongated slots (11) and two fixing bolts (12) are provided.

The fourth fence (10) is fitted between the universal head and the outfeed table. This fence can also be adjusted transversely to suit the width of the timber undergoing machining. For this purpose two elongated slots (13) and two fixing bolts (14) are provided.



FRONT FENCES MODELS 1U, 2U, 3U, 4U, 1SU, 2SU, 3SU, 4SU

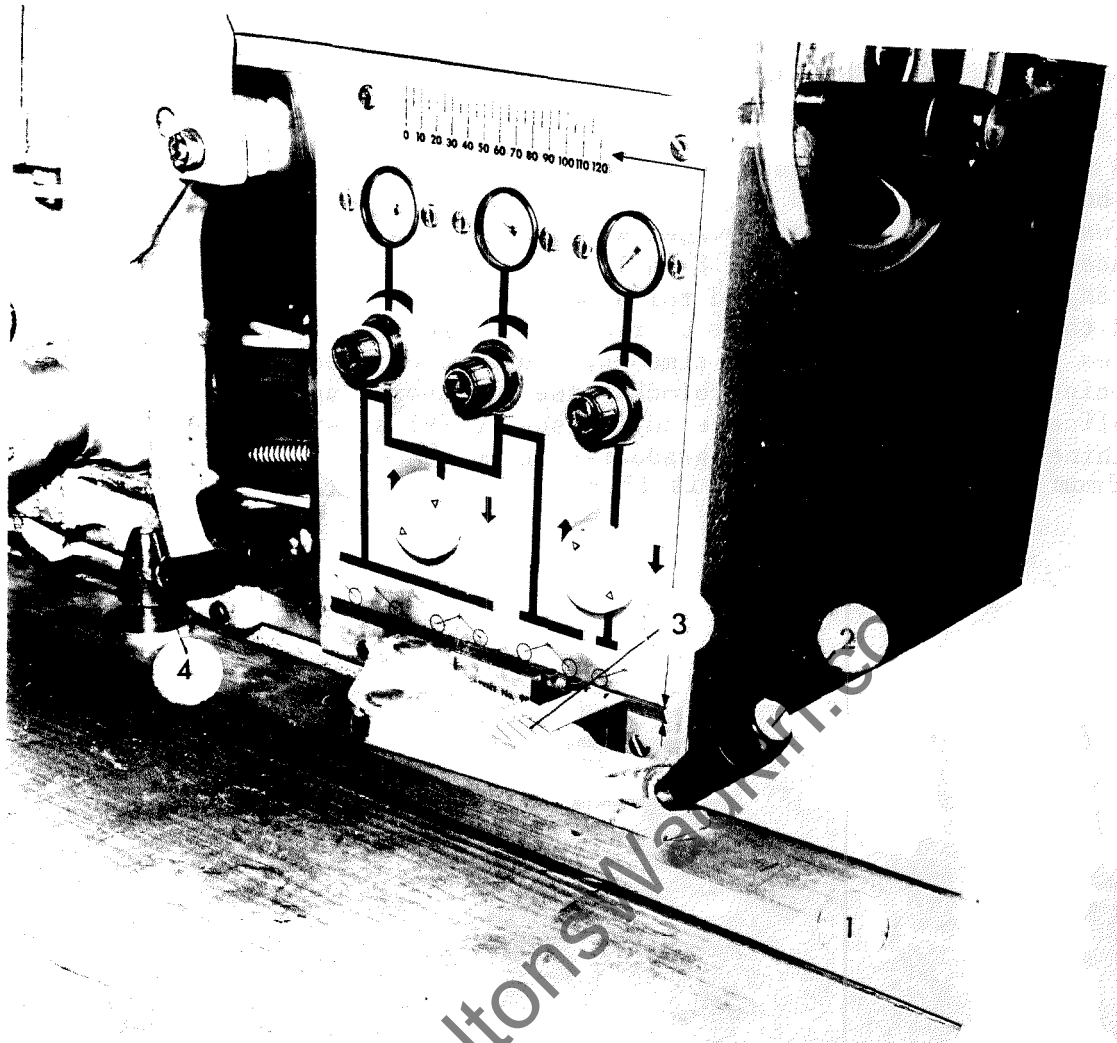
FENCES

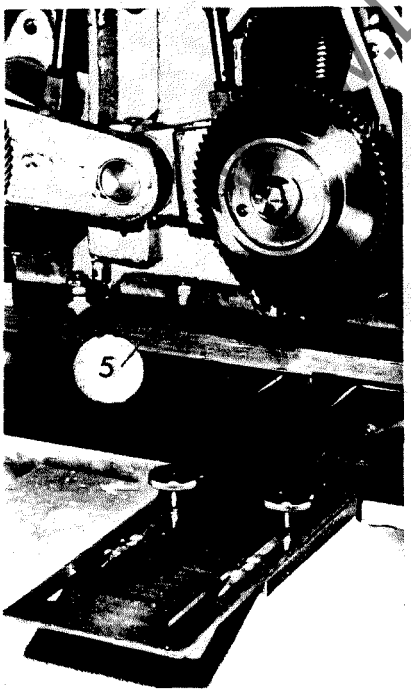
REAR

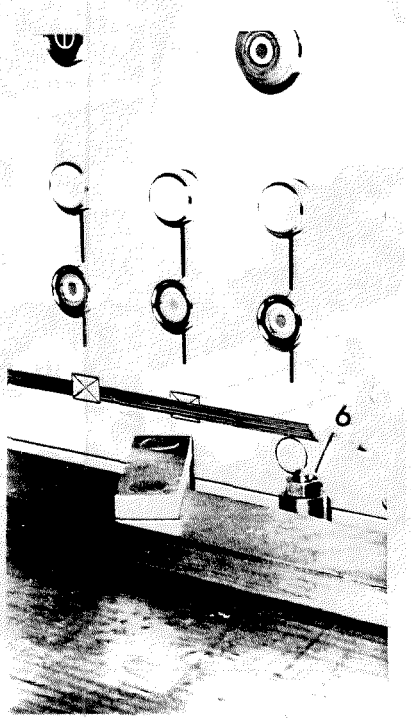
Between the Infeed Table and the First Fence Side Vertical Head.
The fence (1) is adjustable both to suit the thickness of the cut and also to suit various cutting circle diameters of the cutterblocks. (2) is the operating lever which enables the position of the fence to be varied to suit the thickness of cut. (3) is an indicator plate calibrated in increments of 2mm (.078 in.) up to an amount of 10mm (0.4 in.) of transverse adjustment.

(4) is the locking lever for this movement.

Lateral adjustment to suit various cutting circles is effected by undoing two nuts (5) and (6), thus permitting the whole fence to be moved laterally about two studs located in the elongated slot.



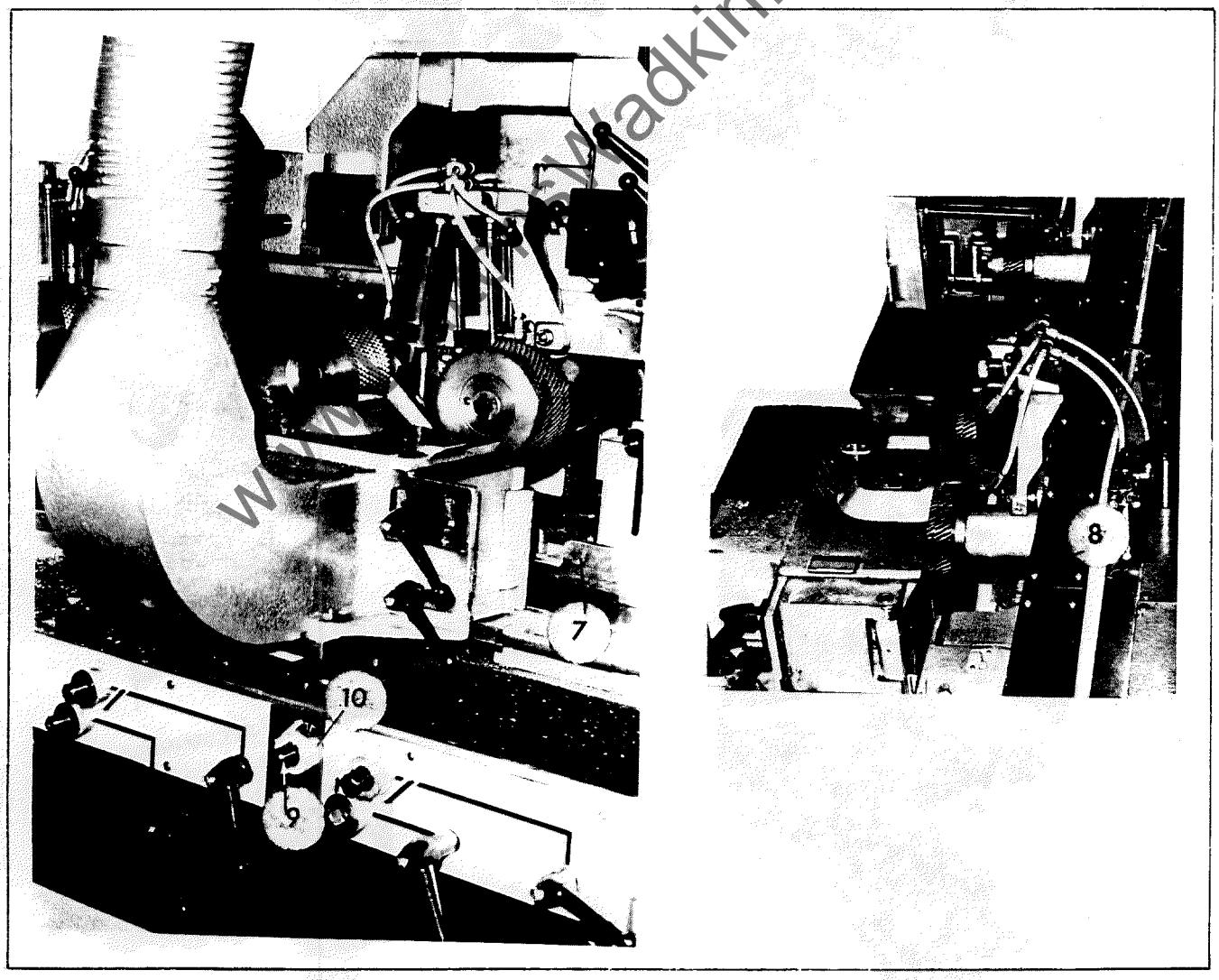




REAR FENCE (cont.)

MACHINES WITH A FIRST AND SECOND FENCE SIDE VERTICAL HEADS.

The Rear Fence (7) between the First and Second Vertical Heads is adjustable in both the lateral and transverse direction. For the purpose of Lateral Adjustment the fence is provided with three equal diameter holes, equally spaced at centres of 20mm (.8 in.) to accommodate a single fixing bolt (8). To adjust the fence the feed rolls must be lifted to the uppermost position and the fixing bolt (8) must be removed and re-located in one of the three holes provided, at the same time the fence moved laterally to suit the required cutting circle of the cutterblock. The transverse adjustment is made by the application of a crank handle on the square (9) situated at the front of the machine. (10) is a vernier graduated in mm (.04 in.) increments. The maximum amount of adjustment is 10mm (.4 ins.)

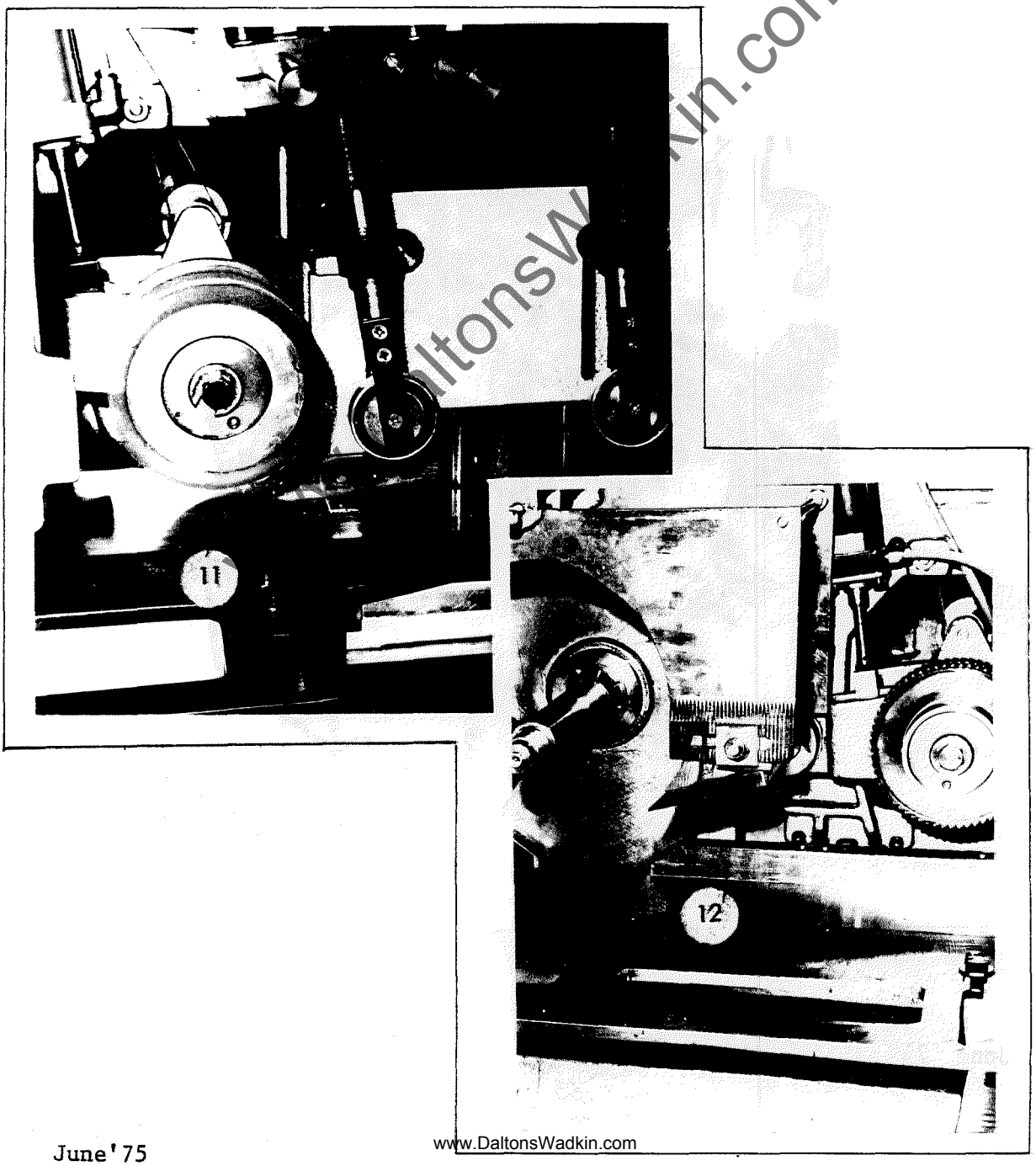


REAR FENCES (cont.)

Machines with a first and second fence side vertical heads. (cont.)

The rear fence between the second fence side vertical and the first top horizontal head is in two parts. An adjustable fence (11) nearest the second fence vertical head and a fixed fence (12) nearest the first top horizontal head. The fence (11) is adjustable in the lateral direction only. For this purpose the fence is provided with three equal diameter holes, equally spaced at centres of 20mm (.8 in.) to accommodate a single fixing bolt. To adjust the fence the feed rolls must be lifted to the uppermost position and the fixing bolt (8) must be removed and re-located in one of the three holes provided at the same time the fence moved laterally to suit the required cutting circle of the cutterblock.

The rear fence between the first top horizontal head and the outfeed table is fixed.

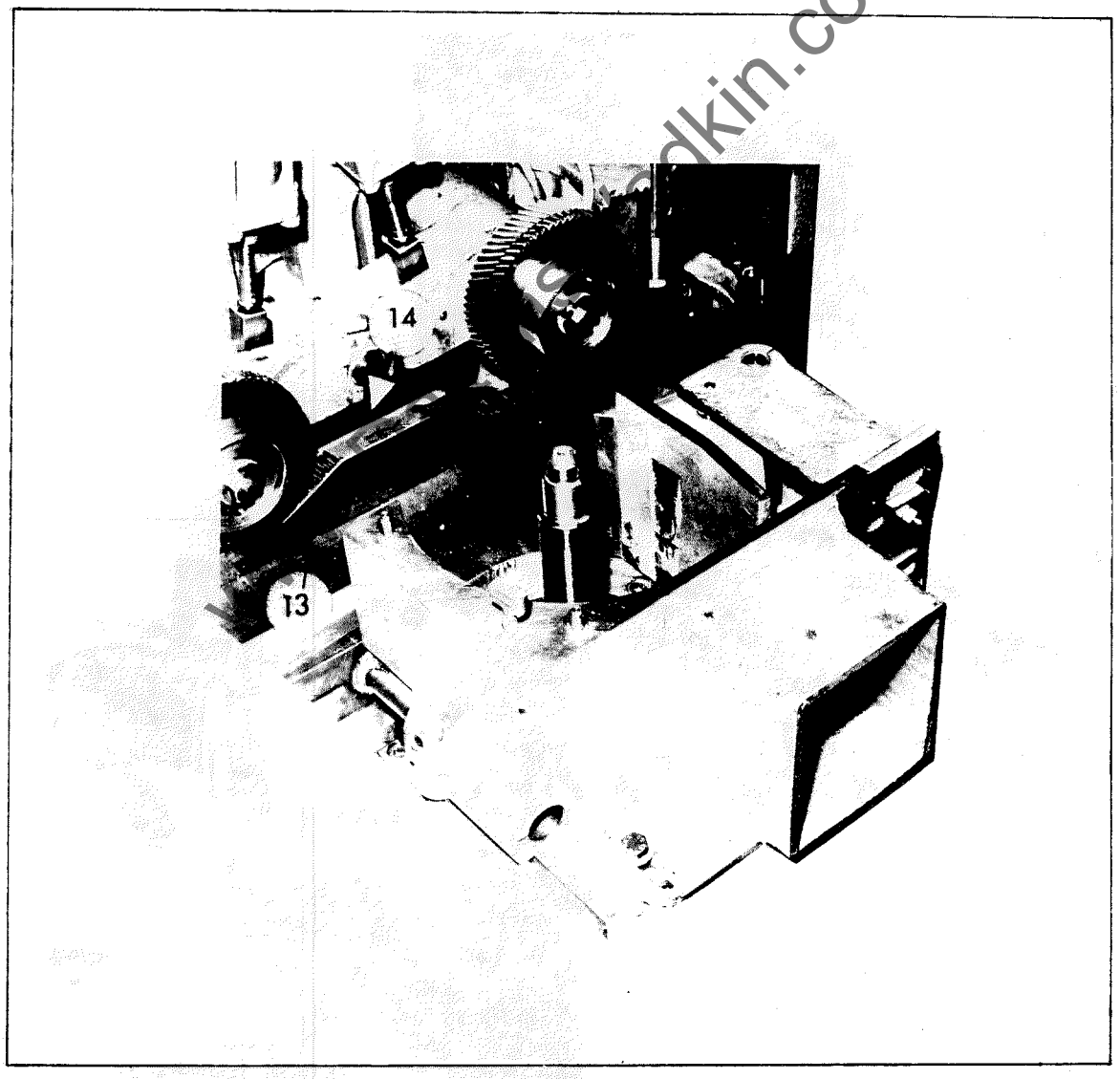


REAR FENCES (cont.)

MACHINES NOT FITTED WITH A SECOND FENCE SIDE VERTICAL HEAD

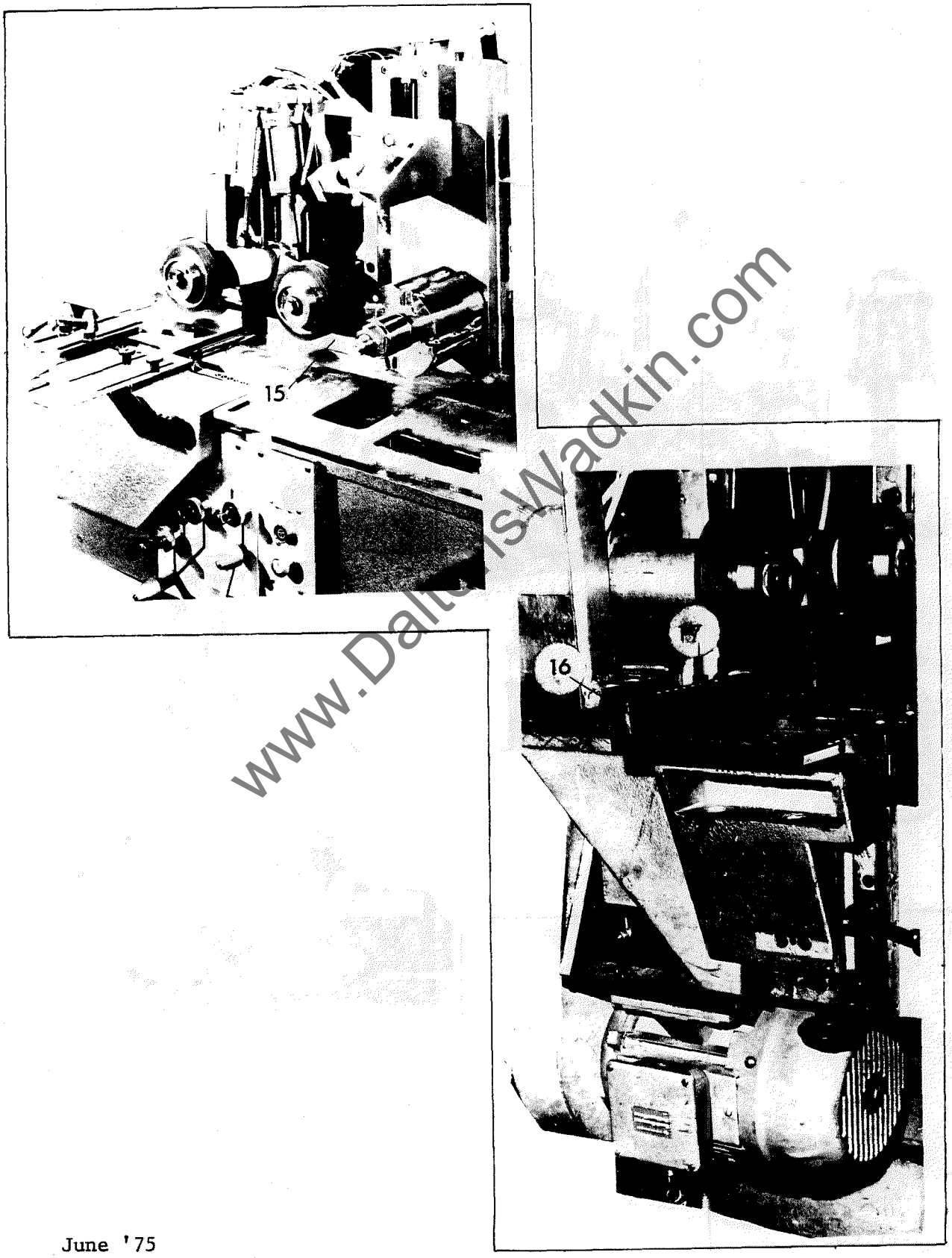
The rear fences between the first fence side vertical head and the first top horizontal head are in two parts. An adjustable fence nearest the vertical head and a fixed fence nearest the first top horizontal head. The fence (13) is adjustable in the lateral direction only. For this purpose the fence is provided with three equal diameter holes, equally spaced at centres of 20mm (.8in.) to accommodate a single fixing bolt To adjust the fence the feed rolls must be lifted to the uppermost position and the fixing bolt (14) must be removed and re-located in one of the three holes provided at the same time the fence moved laterally to suit the required cutting circle of the cutterblock.

The rear fence between the first top horizontal head and the outfeed table is fixed.



REAR FENCES (cont.)

The Rear Fence (15) between the first top horizontal head and the second bottom horizontal head is fixed. The rear fence (16) between the second bottom horizontal head and the outfeed table is adjustable laterally by removing the bolt (17) and re-locating it in any one of the eight equal diameter and equally spaced holes at a pitch of 15mm (.6 ins.)

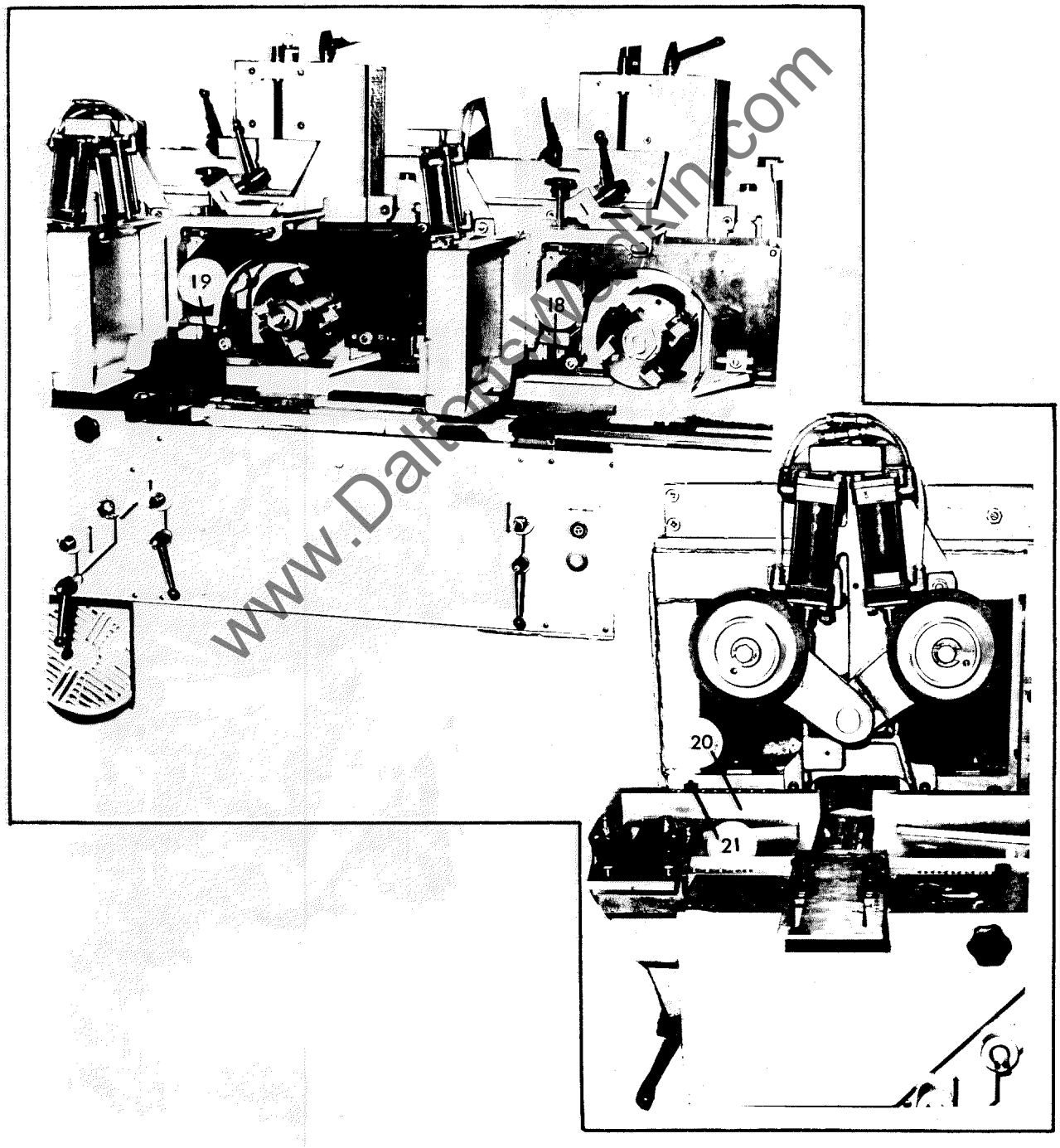


MACHINES WITH SECOND BOTTOM HORIZONTAL HEAD AND SECOND TOP HORIZONTAL HEAD.

The rear fences from the infeed table to the first top horizontal head are as indicated previously.

The rear fence (18) between the first top horizontal head and the second top horizontal head is fixed as is the fence between the second top and the second bottom horizontal head (19).

The rear fence (20) between the second bottom horizontal head and the outfeed table is adjustable laterally by removing the bolt (21) and re-locating it in any one of the eight equal diameter and equally spaced holes at a pitch of 15mm (.6ins.)



REAR FENCES (cont.)

MACHINES MODEL NUMBERS 1, 1S, 3 and 3S.

The rear fences from the infeed table to the first top horizontal head or to the second top horizontal head according to which machine is being considered are as indicated previously.

The rear fence between the top horizontal head either first or second and the outfeed table is fixed.

REAR FENCES (cont.)

MACHINE MODEL NUMBERS 1, 1S, 3 and 3S

The rear fences from the infeed table to the first top horizontal head or to the second top horizontal head according to which machine is being considered are as indicated previously.

The rear fence between the top horizontal head either first or second and the outfeed table is fixed.

MACHINE MODEL NUMBER 3 and 3S with Second Top Horizontal Head

The rear fences from the infeed table to the second top horizontal head are as indicated previously.

The rear fence between the second top horizontal head and the outfeed table is adjustable by the medium of a tenon.

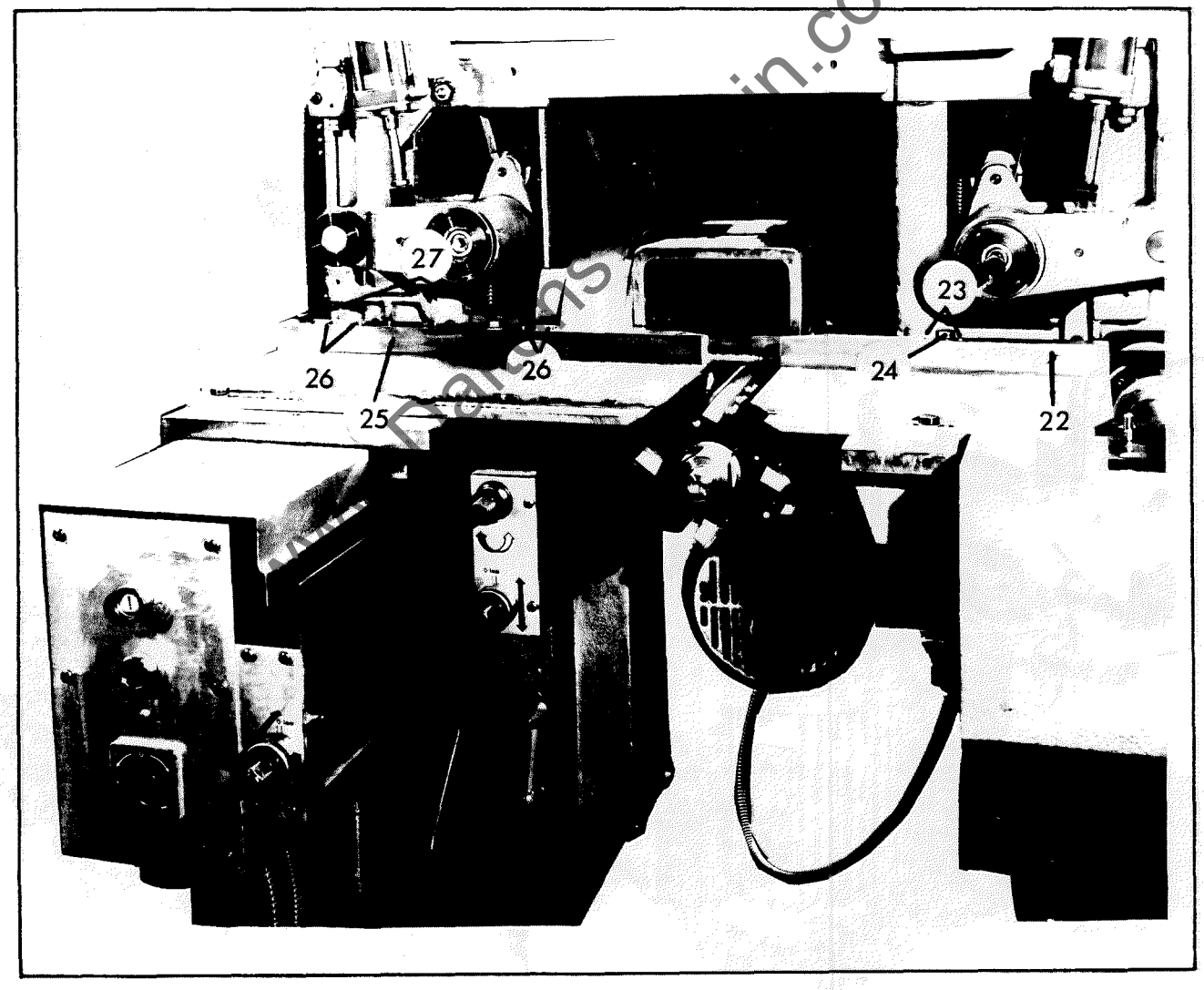
REAR FENCES (cont.)

MACHINE WITH SECOND TOP HORIZONTAL HEAD FOLLOWED BY UNIVERSAL HEAD

The rear fences from the infeed table to the Second Top Horizontal Head are as indicated previously.

The rear fence (22) between the Second Top Horizontal Head and the Universal Head can be adjusted laterally for which purpose equally pitched holes (23) and a single fixing bolt (24) are provided.

The rear fence (25) between the Universal Head and the outfeed table can be adjusted both laterally and transversely for which purpose two groups of three elongated holes (26) at 30mm (1.2ins.) pitch and two fixing bolts (27) are provided.



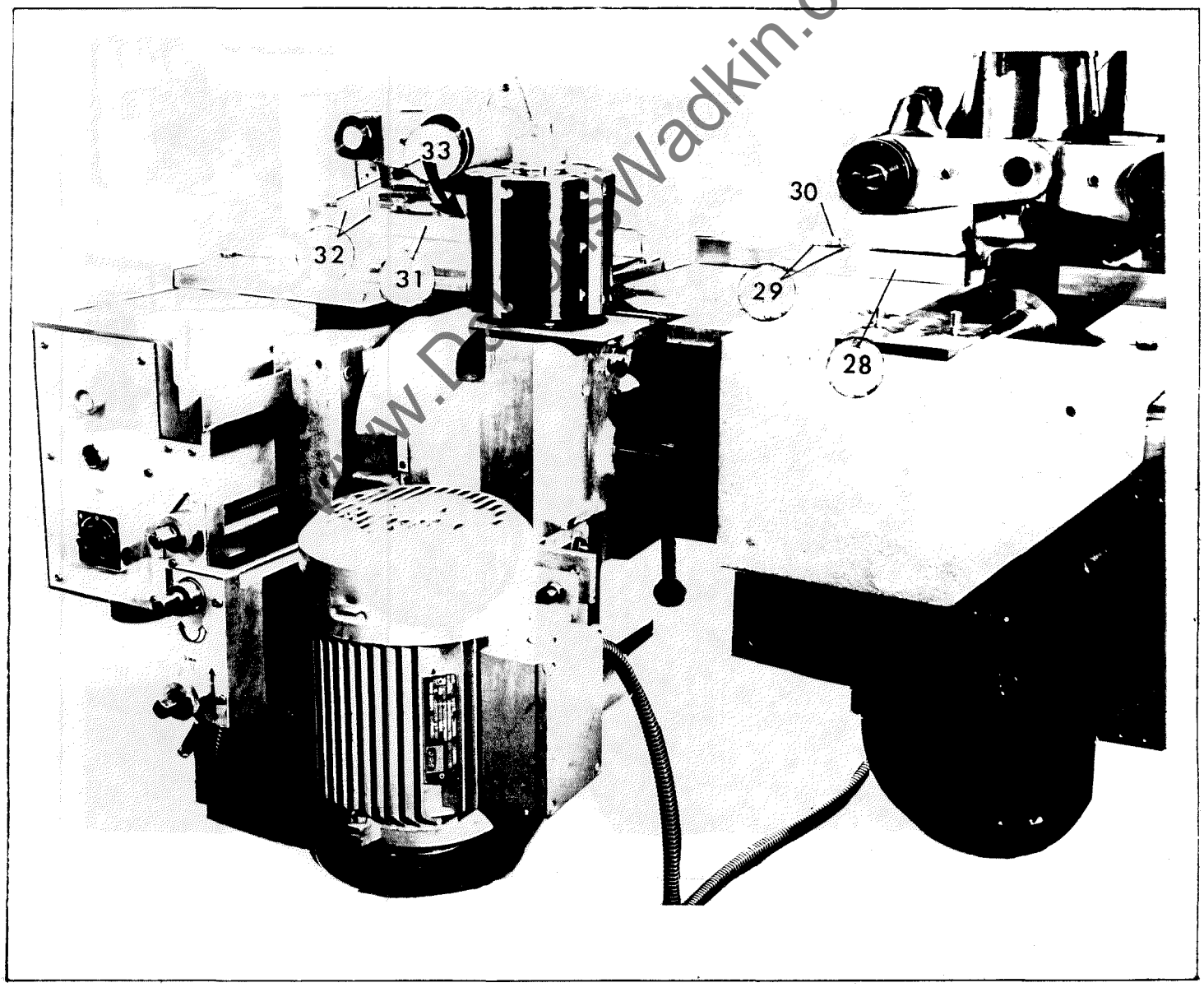
REAR FENCES (Cont.)

MACHINE WITH A SECOND BOTTOM HORIZONTAL HEAD AND A UNIVERSAL HEAD.

The rear fences from the infeed table to the second bottom head are as indicated previously.

The rear fence (28) between the second bottom horizontal head and the universal head can be adjusted laterally for which purpose three equal diameter and equally spaced holes (29) at a pitch of 15mm (.6 ins.) and a fixing bolt (30) are provided.

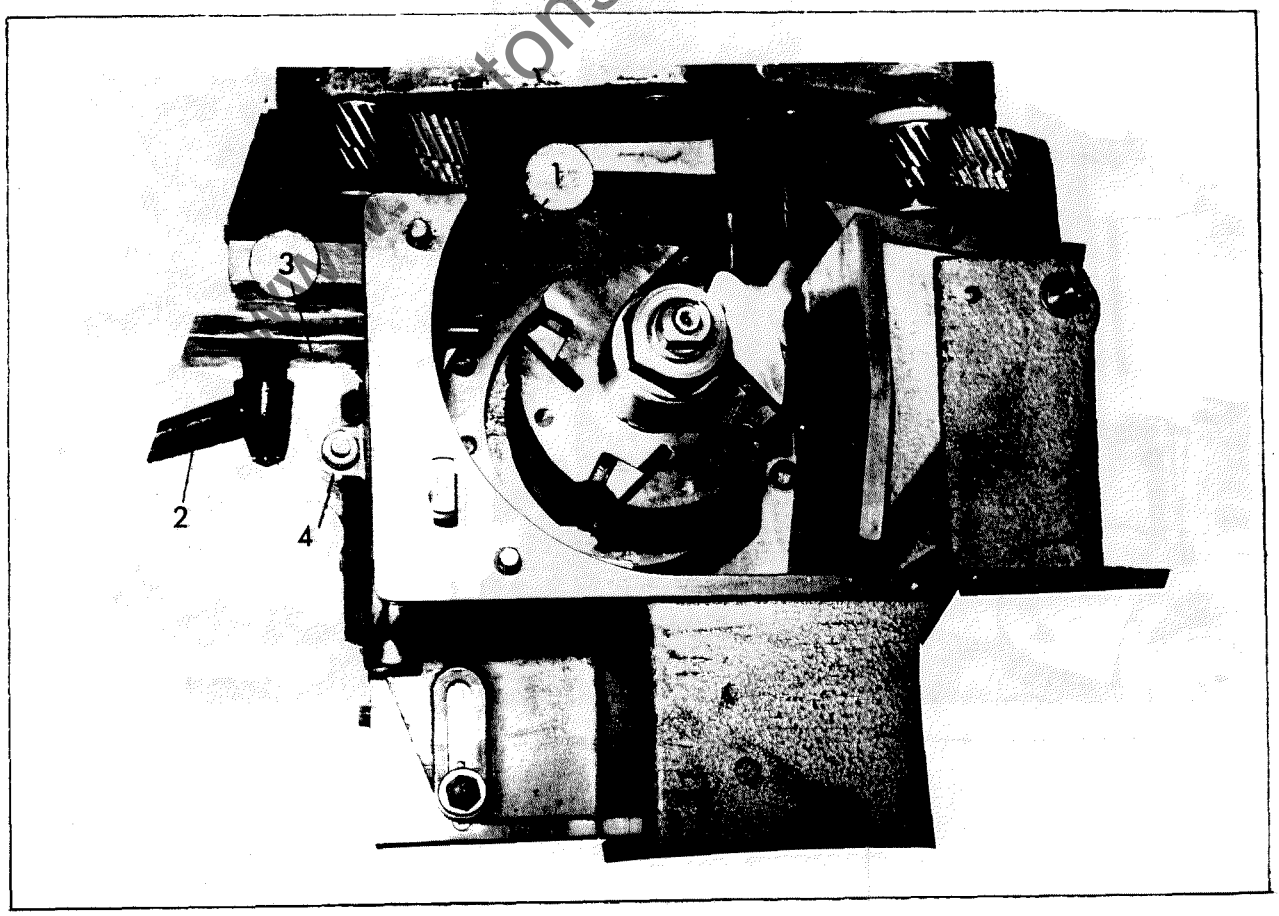
The rear fence (31) between the universal head and the outfeed table can be adjusted both laterally and transversely for which purpose two groups of three elongated holes (32) at 30mm (1.2 in.) pitch and two fixing bolts (33) are provided.



PRESSURES

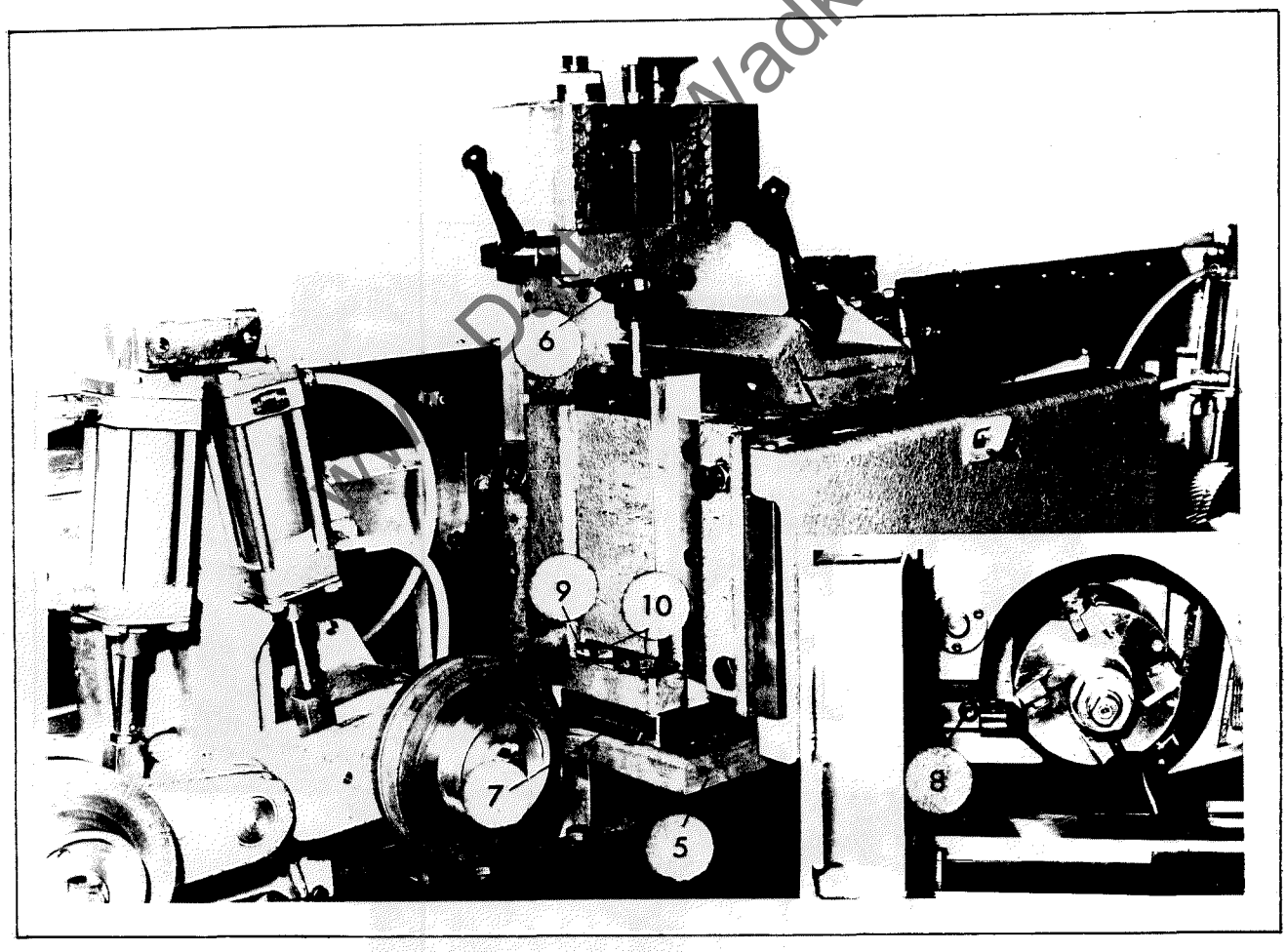
The basic machine normally requires two pressures.

1. A side pad pressure (1) which is mounted immediately after the near side vertical head.
It can be adjusted laterally and transversely. In the former to suit the cutter block cutting circle diameter by means of locking lever (2) and elongated slot (3). The transverse adjustment to cater for varying widths of timber is carried out by slackening nut (4) and sliding the pad into position to cut the timber.



PRESSURES (cont.)

2. A short top pad pressure (5) which is mounted immediately after the first top horizontal head.
The pressure can be adjusted vertically, laterally and transversely. The vertical adjustment to cater for various thicknesses of timber is carried out by means of a screw from star handwheel (6). The lateral adjustment to suit the cutterblock cutting circle diameter is via a vee slide (7). (8) is the locking nut for this movement. The transverse adjustment to cater for varying widths and profiles of moulds is via an elongated slot (9). There are two locating bolts (10) for this movement.



PRESSURES (cont.)

Additional pressures are available for 'short stock' working. These can be supplied separately as either Top Roller Pressures or Side Pressures or they can be complementary. The setting of the top roller pressure is either by manual means or automatic means dependent upon the option chosen the latter working in conjunction with a pneumatic cylinder and ram, the circuitry of which is interlocked with that of the feed rolls.
The roller pressure assemblies (11) are either located singly or in tandem between the feed rolls at the side heads.

The standard arrangement with manual setting includes two pressures with a short clamp (12) and one pressure with a long clamp (13). These are fitted to two main mounting bars (14) and four secondary bars (pressure shaft brackets) (15), the whole being carried from two substantial brackets attached to the overhead beam. The adjustable secondary bar (Pressure shaft bracket) (15) carries the pressure pivot shaft (16) on which is mounted the clamp piece referred to as either 'short' or 'long', this designation relates to the centre distance between the pivot shaft and the vertical axis of the top roller pressure.

The 'short' dimension is 35mm (1.38 ins.) and the 'long' dimension is 110mm (4.33 ins.)

The locking and adjusting lever for the pressure shaft bracket is (17).

The locking and adjusting lever for the clamp piece is (18).

The locking and adjusting lever (19) enables the top roller pressure to be adjusted for height relative to the workpiece and to assume one of any three modes namely Leading, Vertical and Trailing.

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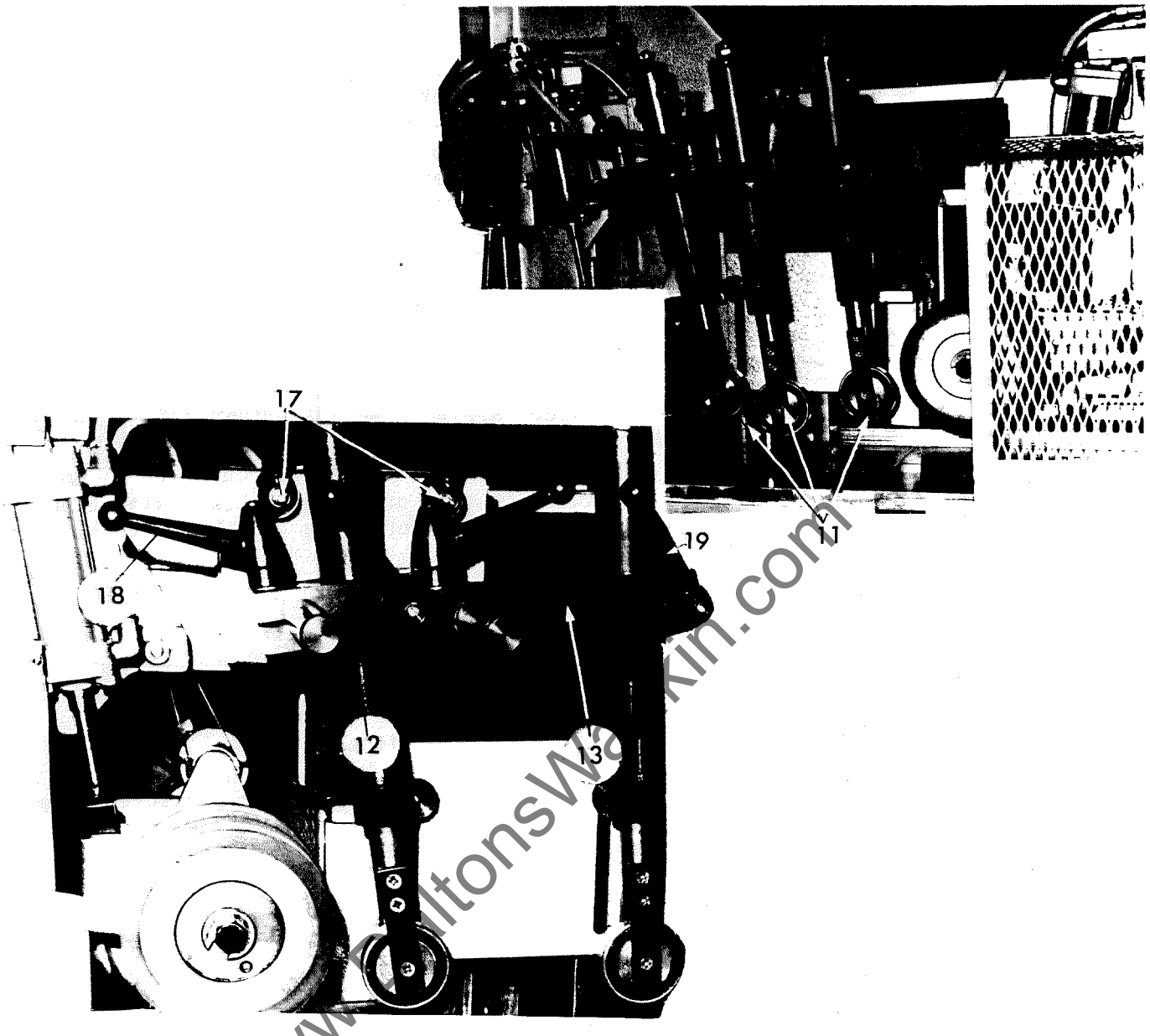
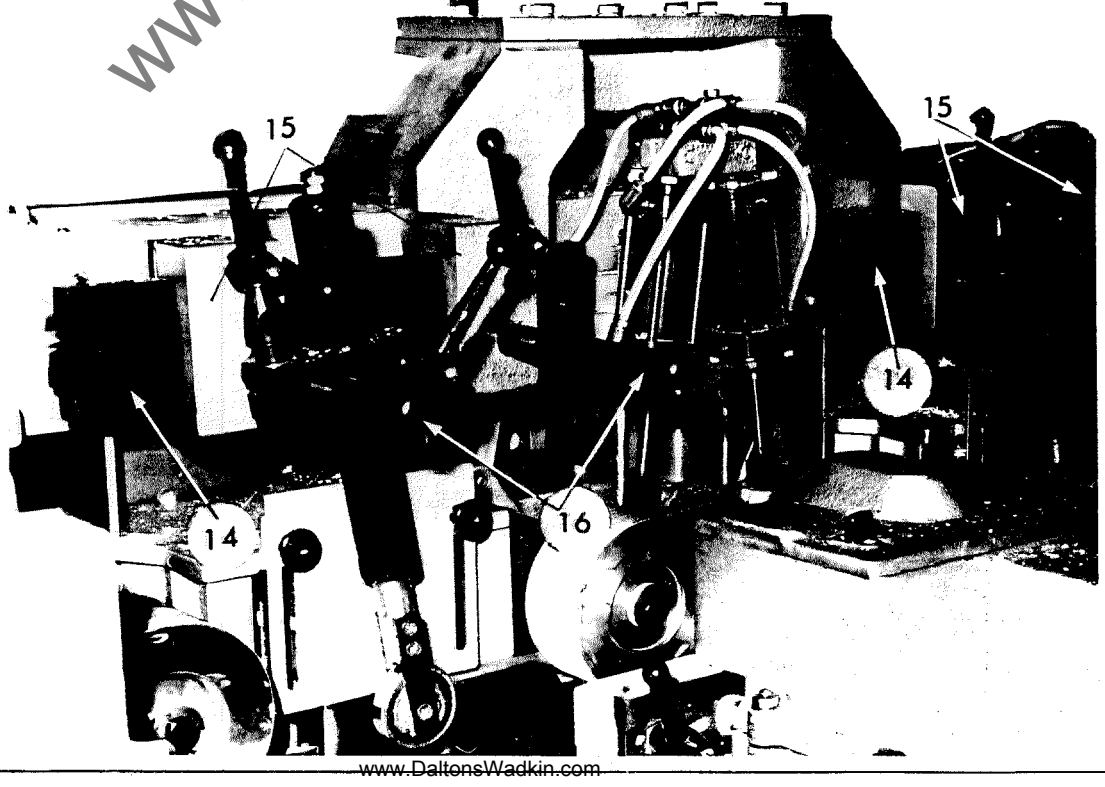
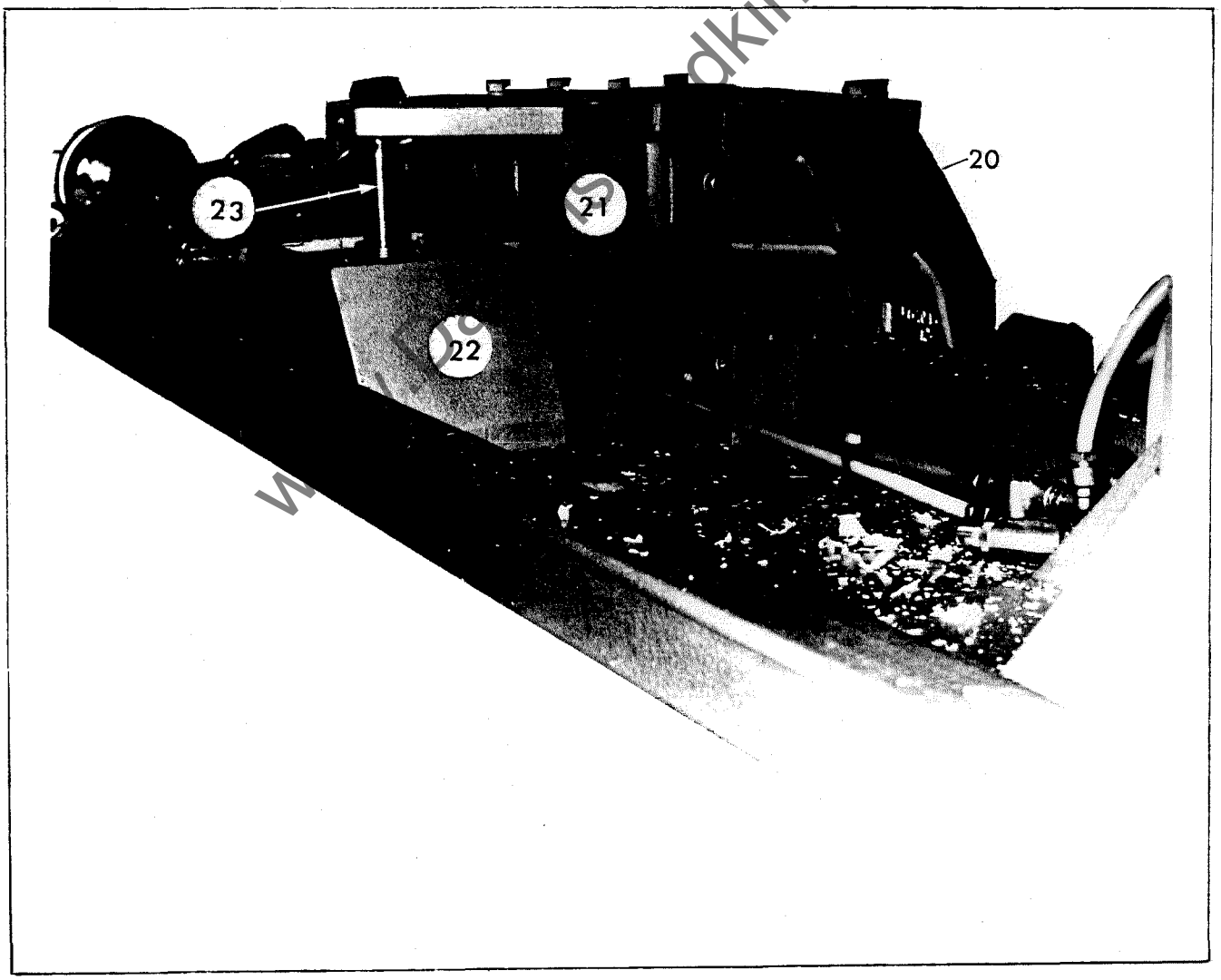




PRESSURES (cont.)

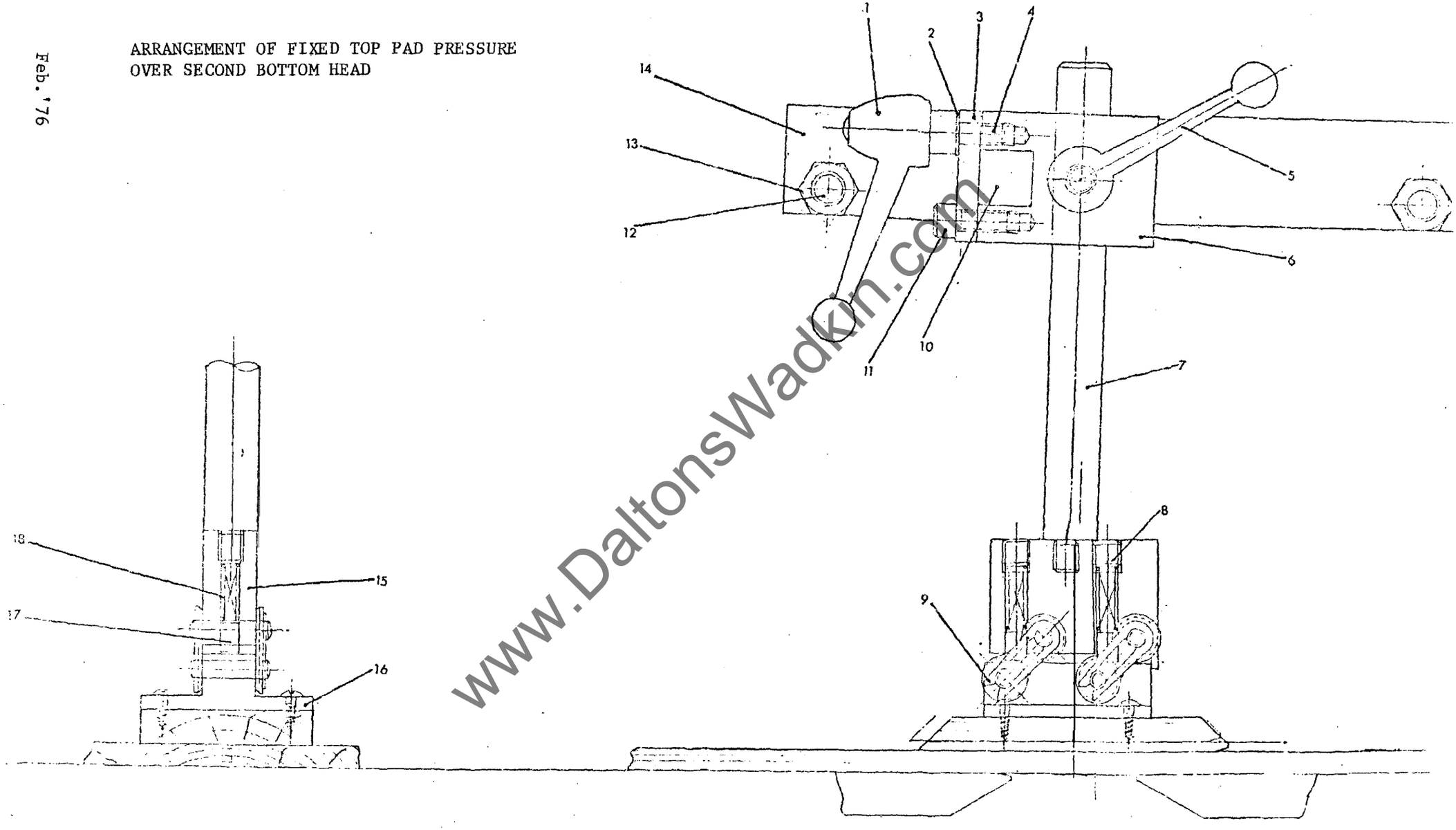
The same as described on Page 79/82 applies when an automatic setting unit is supplied. The only difference is that the main mounting bars are carried from a common bracket (20) which is attached to a slide and slideway (21), the latter being fitted to the overhead beam. The pneumatic cylinder (22) and ram (23) attached to the bracket are fitted to the beam.



ARRANGEMENT OF FIXED TOP PAD PRESSURE OVER SECOND BOTTOM HEAD

Ref.No.	Description	Part No.
1	Adjustable handlever M10 x 1.5mm Thread Hole	KO5 30 301
2	Bright MS Washer 10mm dia.	KO5 28 104
3	Clamp plate for Horizontal Shaft	GEM 4002
4	Stud M10 x 45mm long	KO5 26 267
5	Adjustable Handlever M10 x 1.5mm Thread Hole	KO5 30 301
6	Clamp for Pressure Pad	GEM 4001
7	Vertical Shaft for Pressure Pad	GEM 3580
8	Grub Screw Hexagon Socket Cup Point M12 x 12mm long.	KO5 26 148
9	Renold No.26 Single 1.000in. Pitch	K30 09 372
10	Horizontal Shaft for Pressure Pad	GEM 4003
11	Hexagon Socket Screw M10 x 25mm long	KO5 25 209
12	Stud for Mounting Plate	GEM 3595
13	Hexagon Head Nut M16 x 2mm	KO7 25 105
14	Plate for Mounting Fixed Pressure Pad	GEM 3610
15	Block for Top Pressure Shoe	GEM 3682
16	Top Pad Pressure Shoe	GEM 3598
17	Plunger for Top Pressure Pad	GEM 3686
18	Spring for Top Pad Pressure	GEM 3685

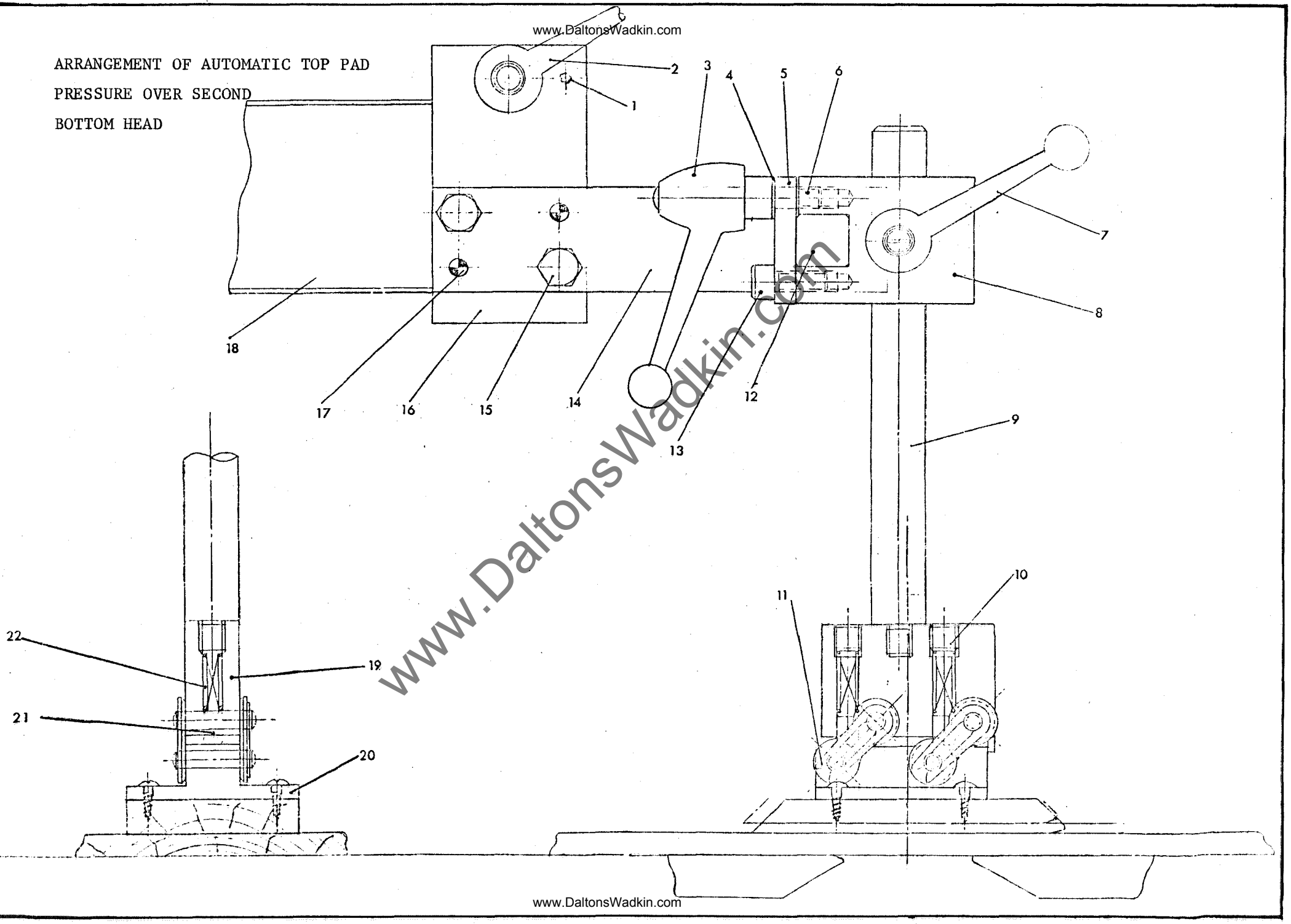
ARRANGEMENT OF FIXED TOP PAD PRESSURE
OVER SECOND BOTTOM HEAD



ARRANGEMENT OF AUTOMATIC TOP PAD PRESSURE OVER SECOND BOTTOM HEAD

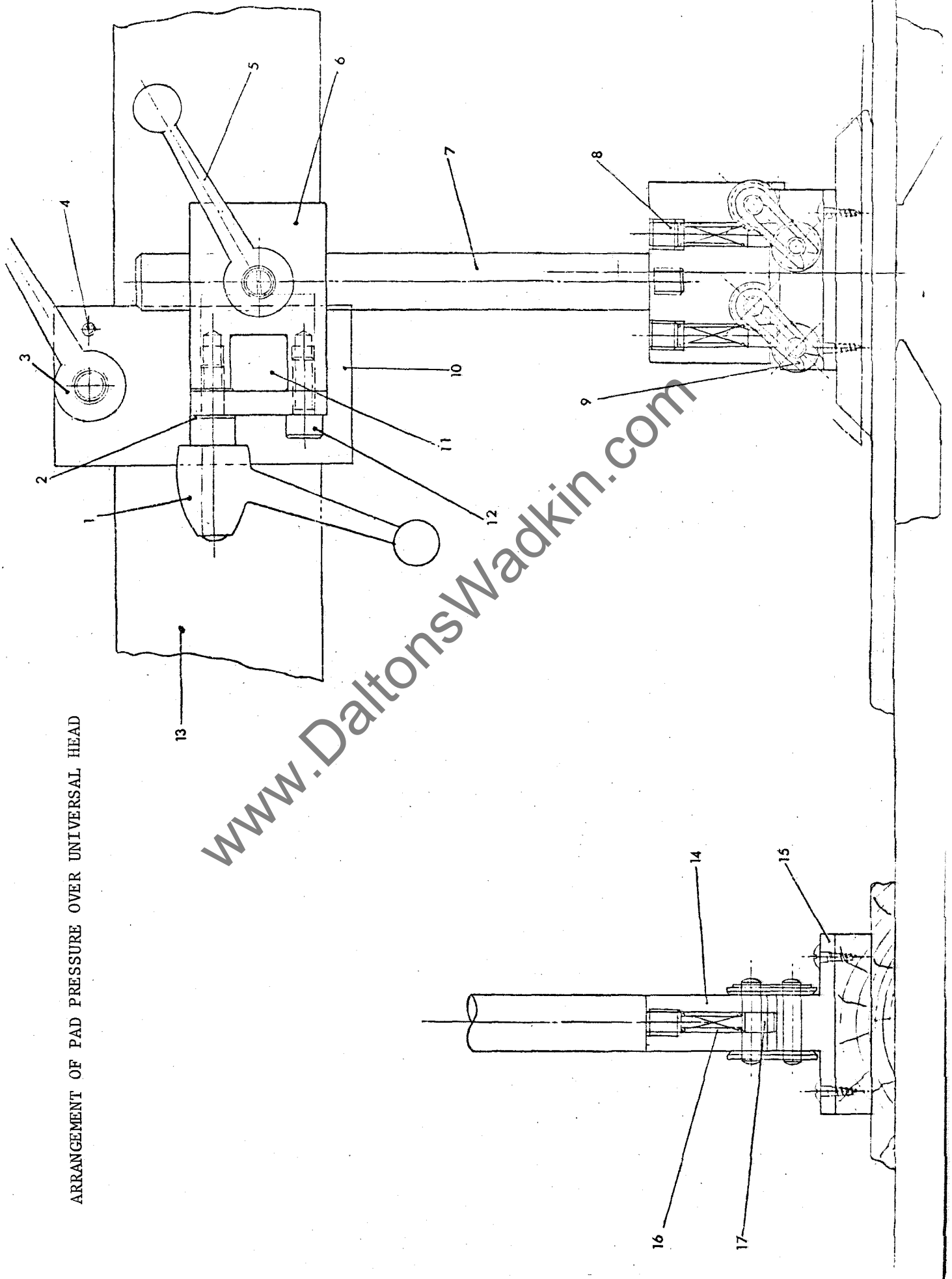
Ref. No.	Description	Part No.
1	Tension Pin 4mm dia. x 20mm length	KO5 20 482
2	Adjustable Handlever M10 x 15mm Thread	KO5 30 301
3	Adjustable Handlever M10 x 1.5mm Thread	KO5 30 301
4	Bright MS Washer 10mm dia.	KO5 28 104
5	Clamp Plate for Horizontal Shaft	GEM 4002
6	Stud M10 x 45mm long	KO5 26 267
7	Adjustment Handlever M10 x 1.5mm Thread	KO5 30 301
8	Clamp for Pressure Pad	GEM 4001
9	Vertical Shaft for Pressure Pad	GEM 4073
10	Grub Screw (Cup Point) M12 x 12mm long	KO5 26 148
11	Renold No. 26 Connecting Link Single 1.000 in. Pitch	K30 09 372
12	Horizontal Shaft for Pressure Pad	GEM 4003
13	Hexagon Socket Screw M10 x 2mm long	KO5 25 209
14	Arm for Pressure Pad	GEM 3579
15	Hexagon Head Screw M10 x 35mm long	KO5 25 532
16	Bracket for Arm Pressure Pad	GEM 3578
17	Dowel 8mm dia. x 35mm long	KO5 29 146
18	Support Bar (Left Hand)	GEM 3533
19	Block for Top Pad Pressure Shoe	GEM 3682
20	Top Pad Pressure Shoe	GEM 3598
21	Plunger for Top Pad Pressure	GEM 3686
22	Spring for Top Pad Pressure	GEM 3685

ARRANGEMENT OF AUTOMATIC TOP PAD PRESSURE OVER SECOND BOTTOM HEAD



ARRANGEMENT OF PAD PRESSURE OVER UNIVERSAL HEAD

Ref. No.	Description	Part No.
1	Adjustable Handlever M10 x 1.5mm Pitch Thread Hole	K05 30 301
2	Bright MS Washer 10mm dia.	K05 28 104
3	Adjustable Handlever M10 x 1.5mm Pitch Thread Hole	K05 30 301
4	Tension Pin 4mm dia. x 20mm long	K05 20 482
5	Adjustable handlever M10 x 1.5mm Pitch Thread Hole	K05 30 301
6	Clamp for Pad Pressure Shafts	GEM 4001
7	Vertical Shaft for Pressure Pad	GEM 4073
8	Socket Grubscrew (Cup Point) M12 x 12mm long	K06 26 148
9	Renold Connecting Link No.26 Single 1.000in. Pitch	K30 09 372
10	Pressure Shaft Bracket	GEM 4066
11	Horizontal Shaft for Pressure Pad	GEM 4003
12	Cup Screw M10 x 25mm Long	K05 25 209
13	Pressure Bar	GEM 3319
14	Block for Top Pressure Shoe	GEM 3682
15	Top Pad Pressure Shoe Over Second Bottom Horizontal Head	GEM 3598
16	Spring for Top Pad Pressure	GEM 3686
17	Plunger for Top Pad Pressure	GEM 3685

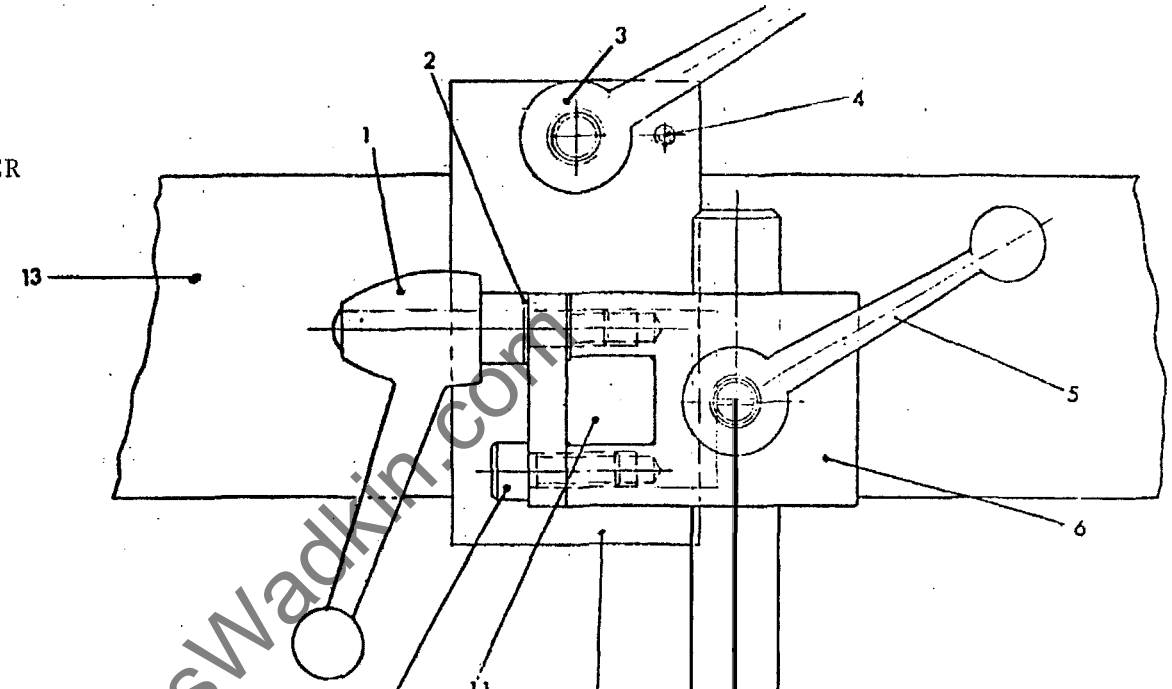


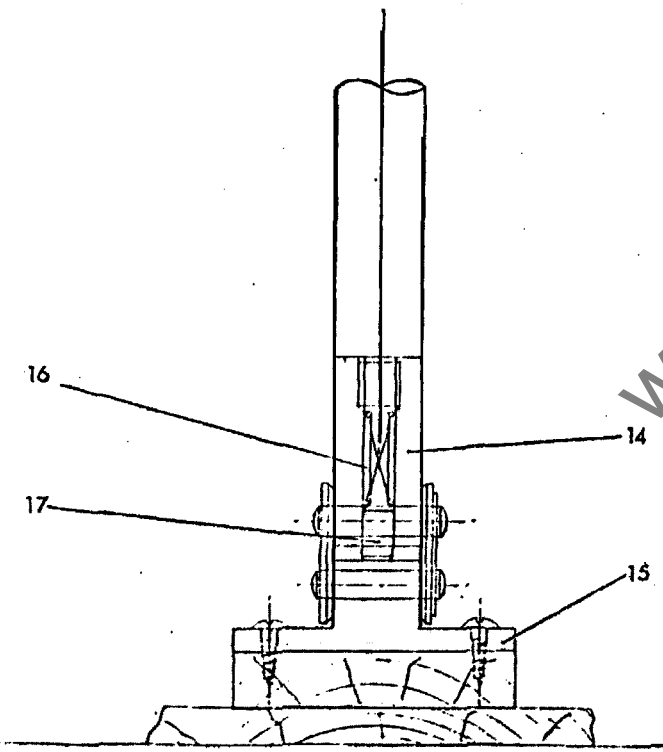
ARRANGEMENT OF PAD PRESSURE OVER UNIVERSAL HEAD

ARRANGEMENT OF AUTOMATIC PAD PRESSURE OVER UNIVERSAL HEAD

Ref. No.	Description	Part No.
1	Adjustable Handlever M10 x 1.5mm Pitch Thread Hole	KO5 30 301
2	Bright MS Washer 10mm dia.	KO5 28 104
3	Adjustable Handlever M10 x 1.5mm Pitch Thread Hole	KO5 30 301
4	Tension Pin 4mm dia. x 20mm long	KO5 20 482
5	Adjustable handlever M10 x 1.5mm Pitch Thread Hole	KO5 30 301
6	Clamp for Pad Pressure Shafts	GEM 4001
7	Vertical Shaft for Pressure Pad	GEM 4073
8	Socket Grubscrew (Cup Point) M12 x 12mm long	KO6 26 148
9	Renold Connecting Link No. 26 Single 1.000in. Pitch	K30 09 372
10	Pressure Shaft Bracket	GEM 4066
11	Horizontal Shaft for Pressure Pad	GEM 4003
12	Cup Screw M10 x 25mm long	KO5 25 209
13	Support Bar (left hand)	GEM 3533
14	Block for Top Pad Pressure Shoe	GEM 3682
15	Top Pad Pressure Shoe Over Second Bottom Horizontal Head	GEM 3598
16	Spring for Top Pad Pressure	GEM 3686
17	Plunger for Top Pad Pressure	GEM 3685

ARRANGEMENT OF AUTOMATIC PAD PRESSURE OVER UNIVERSAL HEAD





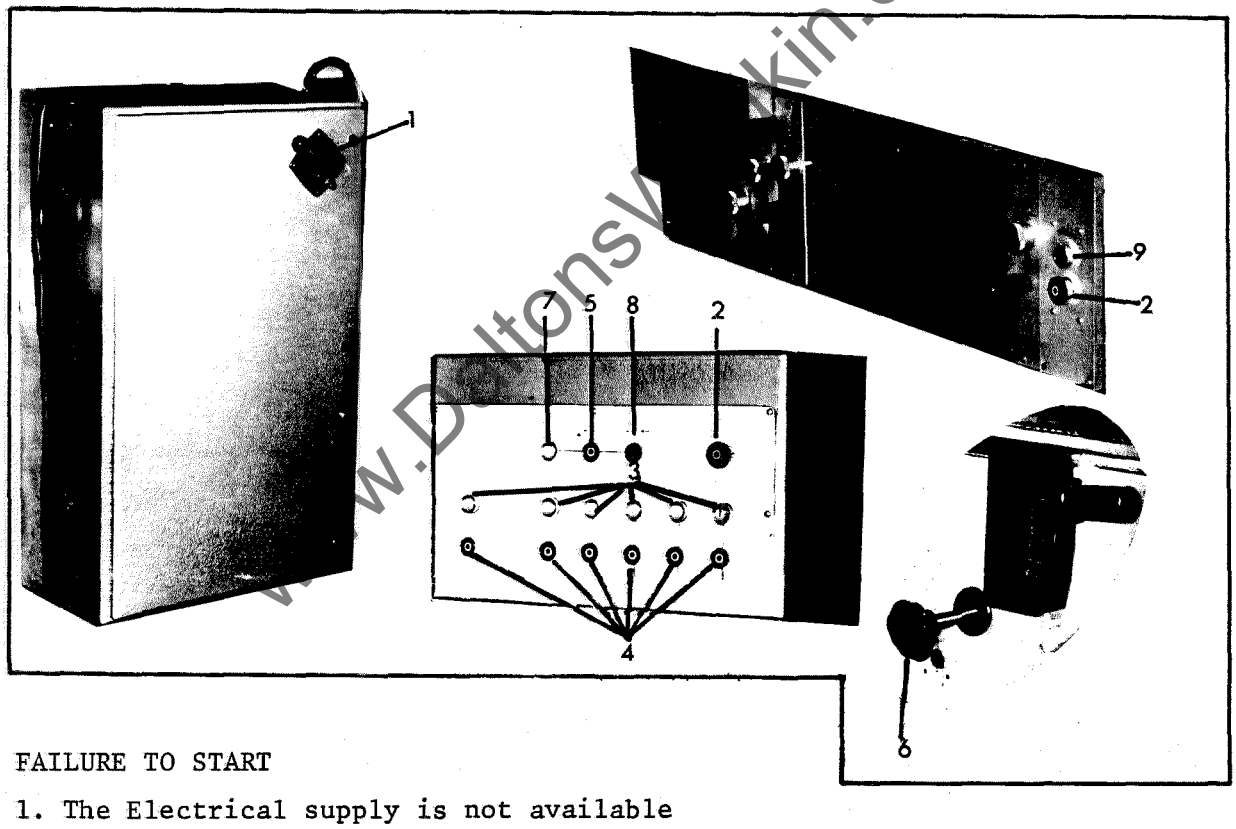
ELECTRICAL CONTROLS

The electrical supply disconnect (isolating) switch (1) is situated in the control cubicle at the infeed end of the machine and before any cutter spindle or feed can be operated the switch must be turned to the 'on' position.

The mushroom headed 'lock off' stop buttons (2) must be turned and released before any head or feed can be started, these buttons are situated at the infeed and outfeed ends of the machine.

To start the cutter spindles, first ensure that the cutterblocks are free to rotate then press the respective start push buttons (3) situated at the control panel; to stop the cutter spindle, press the associated stop button (4).

To start the feed motor press the start feed push buttons (5) at the control panel at the infeed end of the machine and then 'set' the feed speed (6) required. To stop the feed press the stop feed push buttons. The feed can be 'jogged' (inched) forward by holding depressed the 'jog' (inch) push buttons situated at both the infeed (8) and outfeed (9) end of the machine. The outfeed 'jog' (inch) push button when depressed will also stop the feed rolls, if it is required to 'jog' (inch) forward the feed rolls from the outfeed end of the machine, this push button reverts to its normal control function. i.e. it is a 'jog' (inch) and stop feed button.



FAILURE TO START

1. The Electrical supply is not available
2. The fuses have failed or are not fitted
3. The Disconnect (isolating) switch has not been closed
4. One or both of the mushroom headed master stop button is locked in the 'off' position.

SHUT DOWN DURING OPERATION AND FAILURE TO RE-START

1. A fuse or fuses have failed
2. The motor thermal overloads have 'tripped', these will automatically re-set after a short time.

GENERAL MAINTENANCE

CHANGING THE BEARINGS

The bearings have been fitted to the cutterblock spindles (1) in an orthodox manner, however, at the non-drive end of the spindles a liquid engineering adhesive 'Loctite' Grade 601 has been applied to the outer periphery of the bearings (2) and the inner bore of the spindles barrel or housing (3). The adhesive is also applied to the external diameter of the grease retainers (4) and (5) respectively.

PREPARATION PRIOR TO FITTING THE BEARINGS

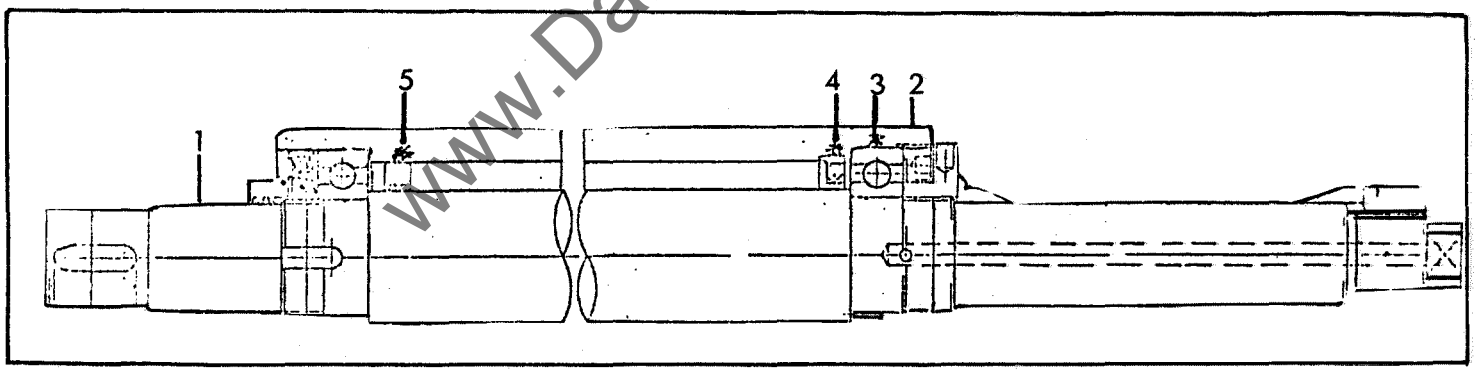
Before fitting the new bearing the protective lubricant must be meticulously removed with petroleum spirit, triethanolamine or other volatile solution.

In order to prevent the moving parts from being damaged by over cleansing add a small amount of the new lubricant to the cleansing agent at the second bath. The film of grease which remains after the solvent has evaporated will provide a good protection for the bearing.

At this stage the new bearings should be charged with KLUBER LUBRICANT TYPE ISOFLEX NBU15. It is very important that the correct amount of grease be applied to the bearing preferably the amount should be measured by applying the formula.

G (weight in grams) = d x B x 0.01 where d = bore of the bearing in mm and B = the width in mm. or approximately sufficient to fill one third of the bearing volume

To disassemble the parts joined by 'Loctite', no special tools are necessary to disassemble the parts joined by 'Loctite', use normal tools and methods. If, however, the holding force of the 'Loctite' joint is too great then apply a gentle heat and break the bond whilst the parts still hot. Sometimes the bond is left as a powder. This powder must be removed before applying further adhesive.



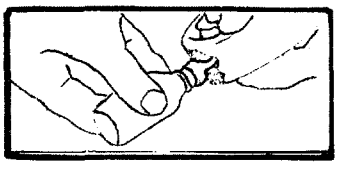
CUTTERBLOCK SPINDLE ASSEMBLY WITH GREASE LUBRICATED BEARINGS

* IMPORTANT - Use 'LOCTITE' grade LT 601 on diameters marked *

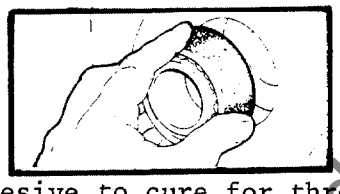
GENERAL MAINTENANCE

FITTING THE BEARINGS

It is not advisable to soak the bearing in a degreasing agent as this removes the protective lubricant from the bearing elements. The outer and inner bearing diameters should be cleaned using a clean cloth dampened with a degreasing agent and allowed to dry. Also ensure that the mating parts are clean and free from grease, then apply a thin bead of 'Loctite 601' to the bearing surface only and position it in the spindle barrel or housing and at the same time rotating the bearing slowly so that the 'Loctite' spreads evenly over the bearing surface.



The bearings should then be locked in position by the locknuts or securing rings.



Allow the 'Loctite' adhesive to cure for three hours with a minimum of one hour before use, however the assembly can be handled after fifteen minutes.

Having fitted the bearings, they should be run in for a period of approximately 16 hours during which time they should not be fully loaded particularly so if the ambient temperatures are high or low.

Bearings that are fully loaded without a previous 'run in' period will suffer damage and have a short life. Bearings always experience an increase in temperature whilst they are being run in even if no particular thermal stress is put on them, the temperature will become normal once they are run in.

GENERAL MAINTENANCE

THE INFINITELY VARIABLE SPEED CHAIN FEED UNIT DRIVING THE FEED ROLLERS.

To change the belt of the variable speed unit the following procedure should be adopted.

1. Remove the taper pin from the speed change handwheel (1) allowing the handwheel to be withdrawn.

2. Remove the chain guard (2).

3. Remove the chain guard (3)

4. Release the driving chain (4)

5. Remove the rear of the chain guard (5)

6. Remove the four fixing bolts (6)

7. Disconnect the electric motor at motor terminal block (7).

8. The whole variable speed unit (8) can now be withdrawn from the machine.

9. Release four Allen screws (9) and slide the cover out of position to reveal the belt, driving and driven pulley.

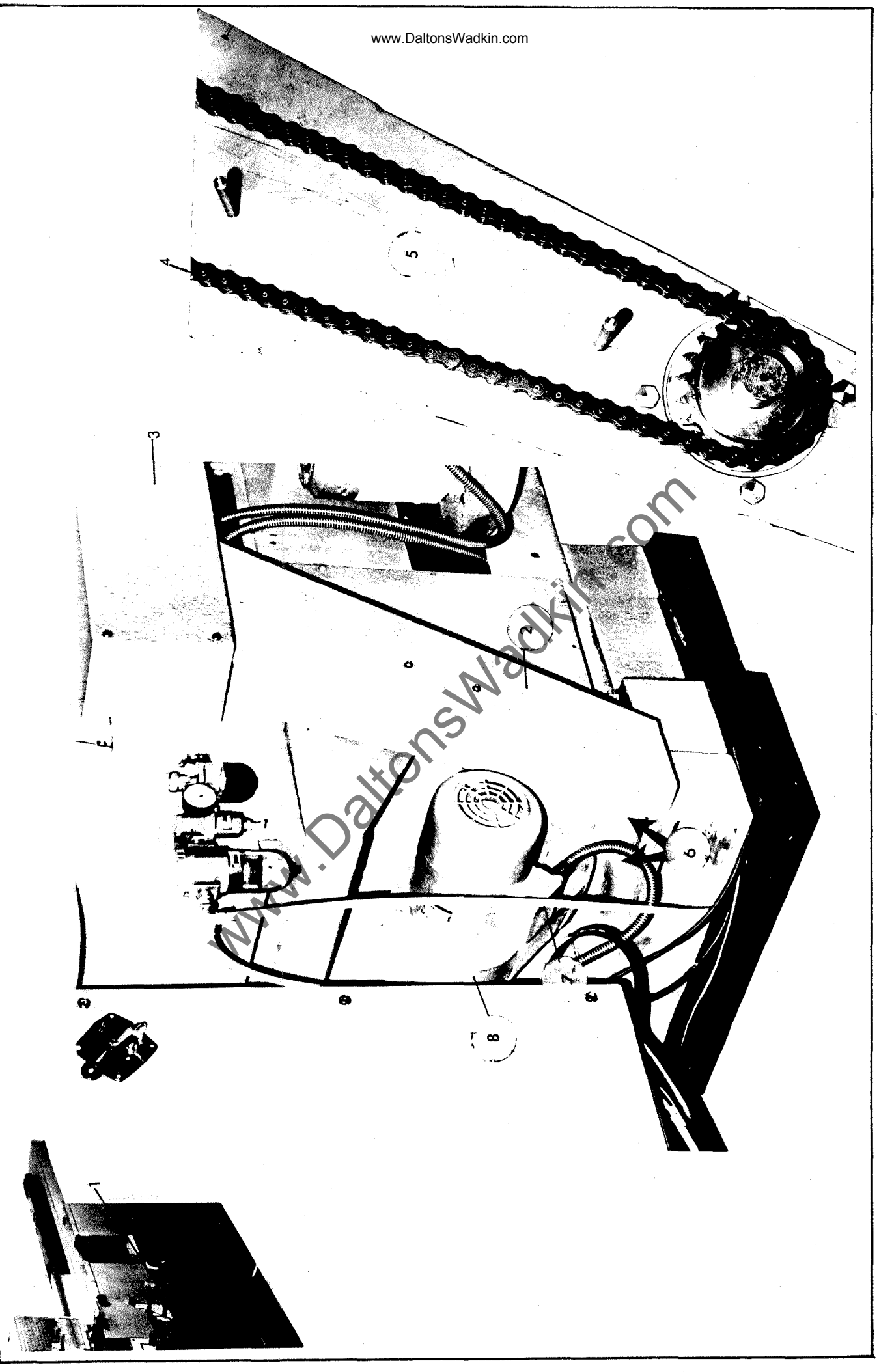
10. Before the belt can be removed it will be necessary to close the driving pulley (10) to its fullest extent and then withdraw the belt over the driven pulley (11).

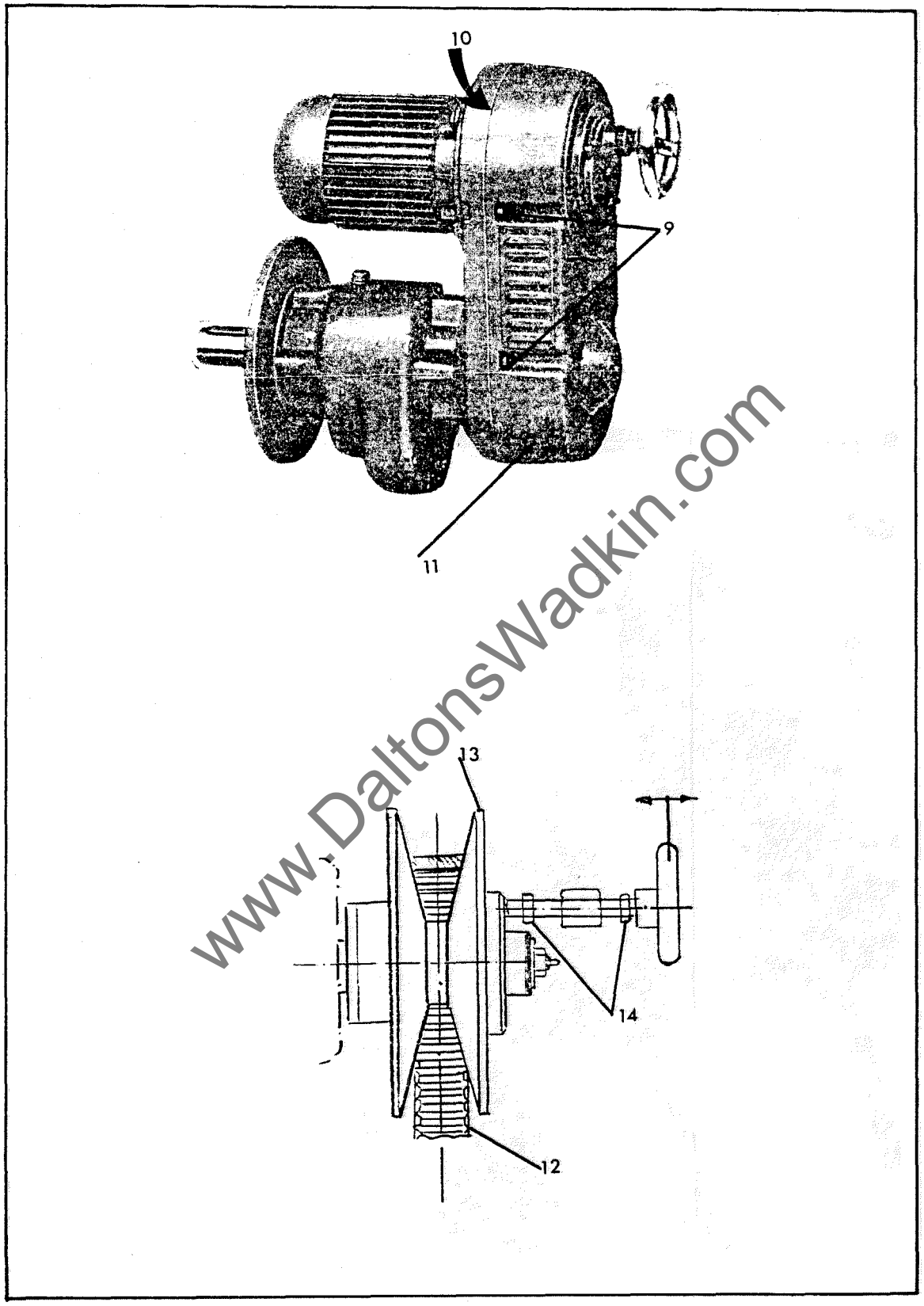
11. The new belt (12) size ref. 20/900, can be fitted by opening the driving pulley to its fullest extent, inserting the belt and drawing it over the rim of the driven pulley. The centre distance should be such that the belt cannot ride above the rim (13) or on the centre hub of the pulleys. Limit stops are provided on the adjustment mechanism in the form of locknuts (14). If the belt varies slightly in length it may be necessary to alter the position of the limit stops, after a replacement has been fitted.

IMPORTANT.

DO NOT ADJUST WHEN THE DRIVE IS STATIONARY, in which case it will be necessary to connect the motor to a temporary electrical supply whilst the drive is being checked.

On the satisfactory completion of replacing the belt re-assemble and replace the feed unit by reversing the procedure of paragraphs 1 to 9.

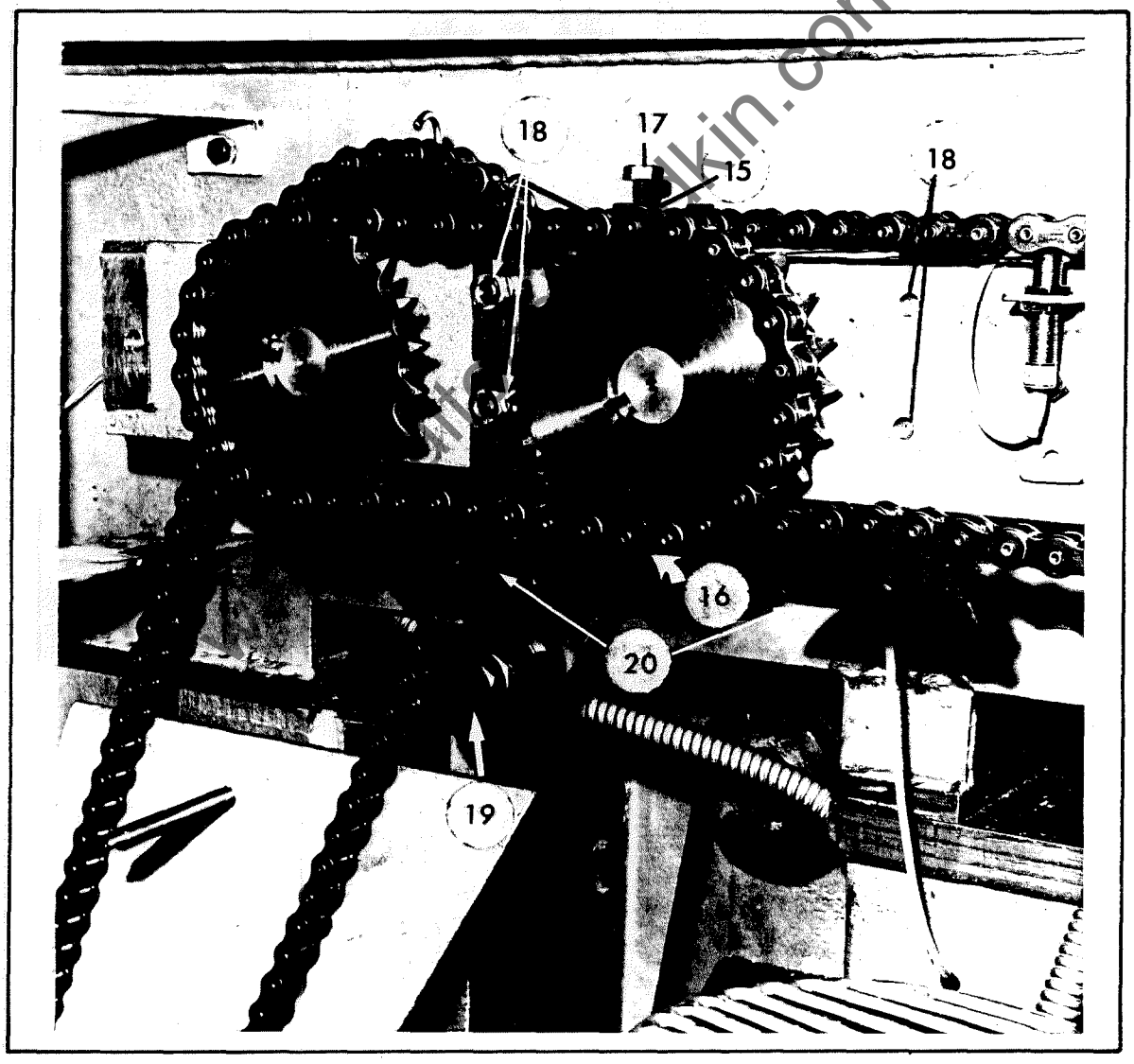




GENERAL MAINTENANCE (cont.)

FEED ROLLS TRANSMISSION CHAINS

When the feed roll transmission chains require re-tensioning, slacken off locknut (15), nut (16) and adjust stud (17) at the same time pivot jockey pulley (18) when the tension is obtained retighten both nuts. The intermediate driving chains can be re-tensioned by undoing nuts (19) and thereby adjusting shoes (20) until the correct tension is obtained.



TIMING BELT DRIVE

Should a cutter spindle belt be removed or renewed, re-tensioning will be necessary.

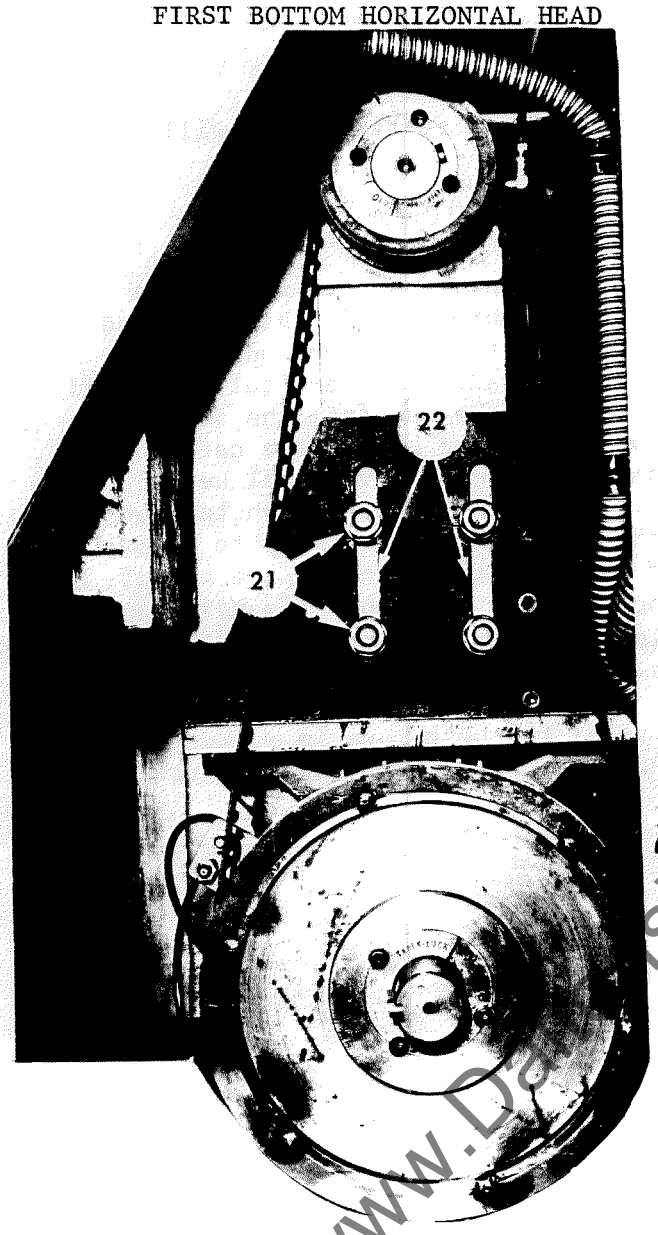
TO RE-TENSION

1. Before access can be made to any belt it will be necessary to remove the guard covers and, at the same time, slacken the nuts (21) at the elongated slots (22) of the motor carrying bracket for first bottom horizontal head and (23) and (24) for second bottom horizontal head. The vertical side head motors are all mounted externally at the rear of the machine, the second first fence side vertical and near side vertical head motors are carried from a double swing bracket (25). The second fence side vertical head is carried from a single swing bracket (26). Each motor has its own tensioning stud (27) and (28). To gain access to the belts it is necessary to remove the cover of the belt guard (29) and, at the same time, loosen the nut of the respective tensioning stud. The procedure for the top horizontal heads is similar except that the adjustable element is through the medium of adjustable studs and hinged motor plates.

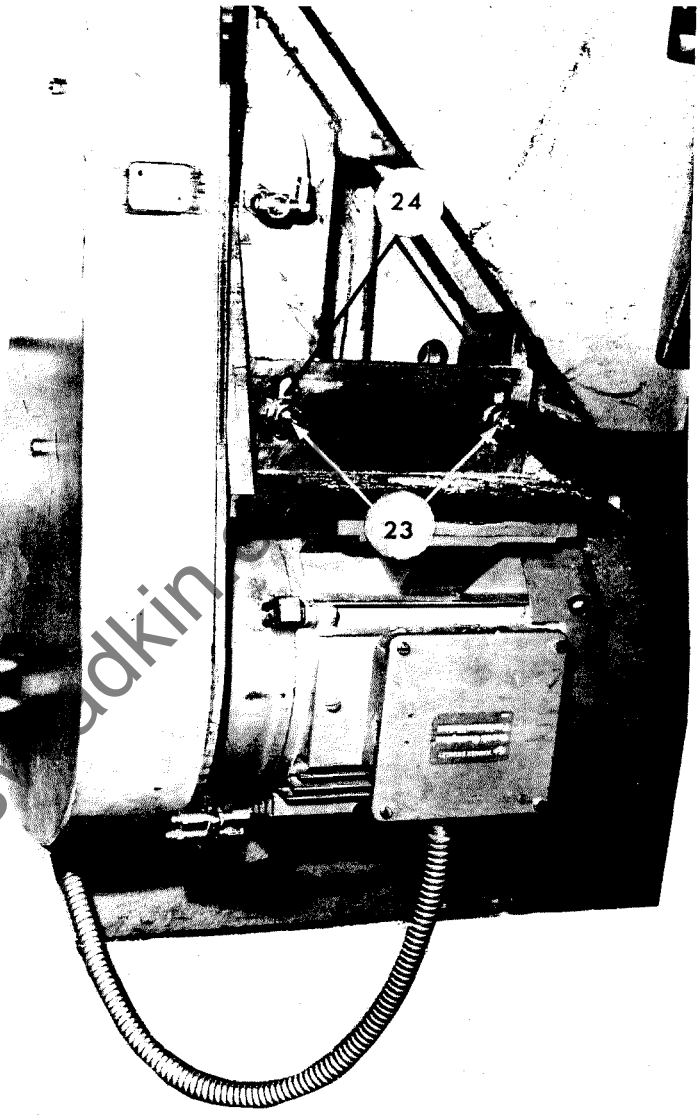
2. With the motor running adjust the motor until the belt runs in a true vibrationless path around the pulleys and re-tighten motor bracket nuts and nut at the tensioning stud.

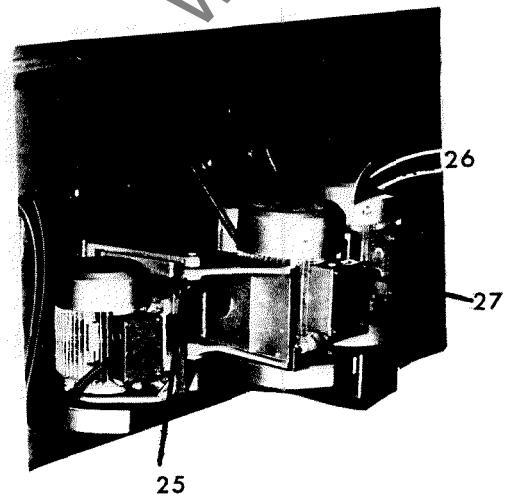
   IMPORTANT: Too little tension will cause the belt to vibrate or 'flap' Too much tension will result in excessive belt whine.

FIRST BOTTOM HORIZONTAL HEAD

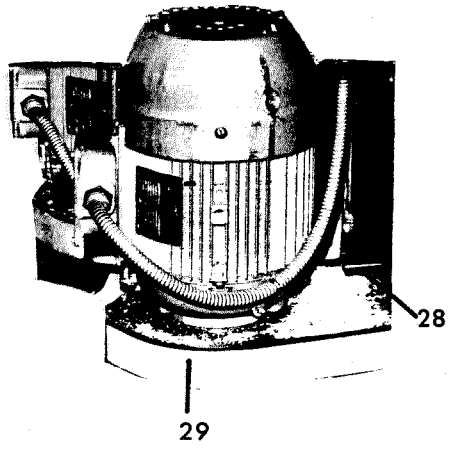


SECOND BOTTOM HORIZONTAL HEAD





FIRST FENCE AND NEAR SIDE HEAD



SECOND FENCE SIDE VERTICAL HEAD

TOOLS AND ACCESSORIES SUPPLIED WITH THE MACHINE

Drg. No.	Description	Part No.
1	6mm x 10mm across the flats Double Ended Spanner	K30 73 781
2	11mm x 13mm across the flats Double Ended Spanner	K30 73 782
3	14mm x 17mm across the flats Double Ended Spanner	K30 73 783
4	19mm x 22mm across the flats Double Ended Spanner	K30 73 784
5	24mm x 27mm across the flats Double Ended Spanner	K30 73 785
6	46mm across flats combined cone extractor and locknut spanner	QT 137
7	3mm across the flats Allen Key	K30 41 141
8	4mm across the flats Allen Key	K30 41 142
9	5mm across the flats Allen Key	K30 41 143
10	6mm across the flats Allen Key	K30 41 144
11	8mm across the flats Allen Key	K30 41 145
12	10mm across the flats Allen Key	K30 41 146
13	Grease Gun type TPT	K30 45 285
14	Oil Gun type MPF	K30 45 285
15	'Loctite' Service Pack	K30 93 467
16	Winding Handle to fit 16mm (5/8in.) square	WE 607
16a	Winding handle spindle	K05 21 306
16b	Collar for Handle	K05 21 311
17	Jack Screw for opening cone pulley of roller feed drive (not shown)	K05 25 731
18	19mm (3/4in.) across flats Ring Spanner (not shown)	QT 2/A

KEY TO LOCATION

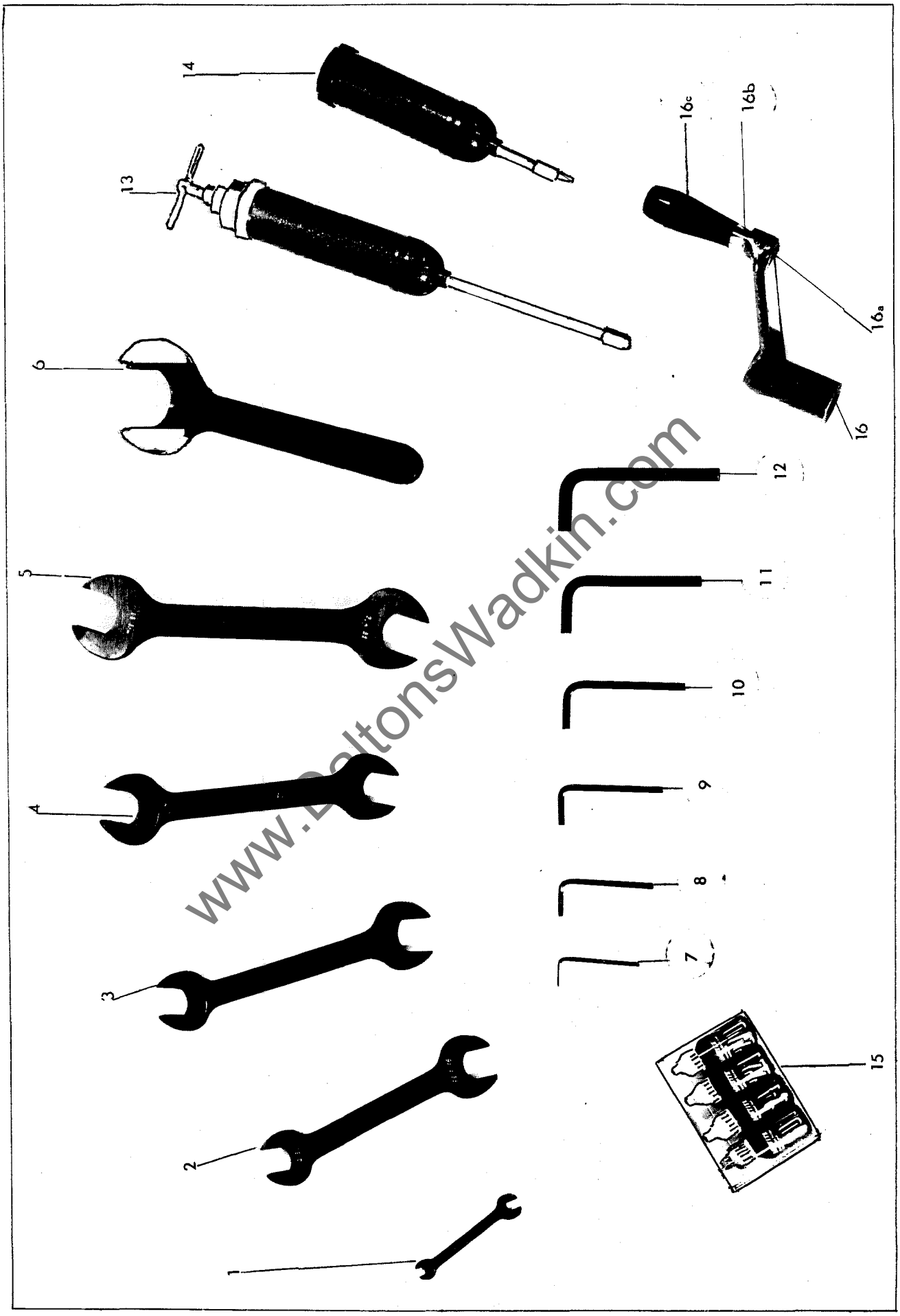
1 - for guards etc.

2 - for chipbreaker nuts

3 - for most main nuts

4 - for feed rollers and spindle end

5 - for belt tensioning.



TOOLS AND ACCESSORIES SUPPLIED WITH THE MACHINE

LUBRICATION SCHEDULE

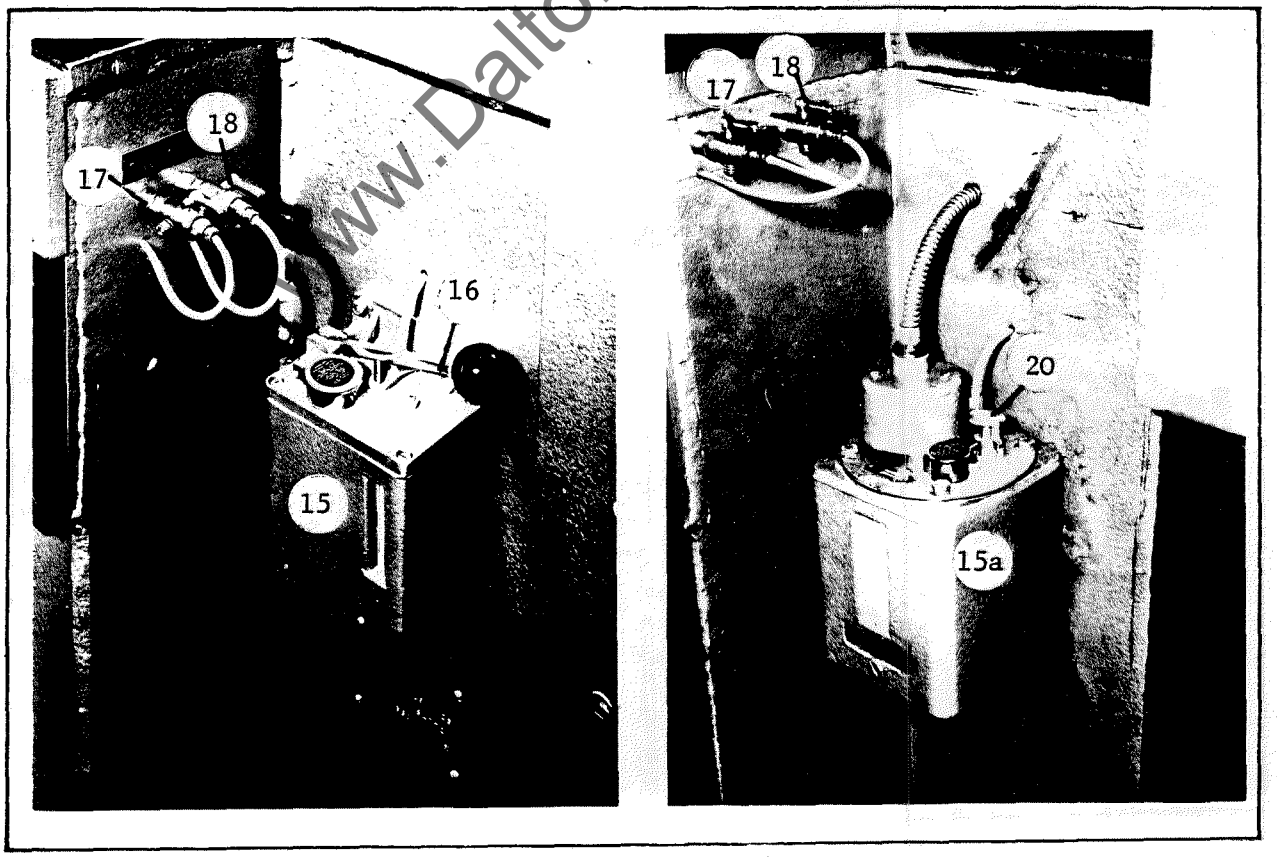
In designing the Wadkin GEM 170 much attention has been given to the question of Maintenance and every endeavour has been made to keep lubrication maintenance to a minimum. In consequence of which 'sealed for life' bearings and 'oilite' bushes have been widely used. However, there are exceptions which are as follows:-

1. In electric motors where 'sealed for life' bearings have not been fitted - these are provided with grease nipples.
2. The cutterblock spindle bearings have been charged with a permanent lubricant:- KLUBER TYPE ISOFLEX NBU 15 Wadkin ref. K30 93 521

The transmission chains driving the feed rolls should be lubricated twice daily by operating the manual oil lubricator (15) by pushing down the lever (16) causing a piston to be depressed and a spring compressed. Each depression discharges 5CC of oil. On opening tap (17) oil delivery is automatic to pre-positioned feeding points along the length of the chain. The manual oil lubricator (15) on opening tap (18) also supplies the machine bed (table) thus facilitating the feeding of timber through the machine. In the latter situation the frequency is directly dependent on the length of running (operating) period of the machine. Pump model is HL5No.AN 5082 K30 62 426

In certain instances and in particular when the machine is fitted in 'line' production an electric oil pump (15a) is fitted. The two taps (17) and (18) allow the oil flow to be regulated to suit the working conditions. The rate of discharge of oil from the electric pump is constant and the discharge per cycle is not adjustable. However the output per hour can be set by setting the piston pump adjuster (20) to vary the cycle time this enables the delivery rate to vary over the range 5.0 to 15.0 cc of oil per hour. For operating and maintenance instructions see the appendix. Pump model No. is SL15/35

The output per hour can be changed by re-setting the piston pump adjuster (as described on page 2 of Interlube Publication No. 258 issue 2) to vary the cycle time thus enabling the delivery rate to be varied. When pump model SL 3537/035 Wadkin ref. K30 62 446 is fitted the output is over the range of 13.0 to 39.0 cc of oil per hour.

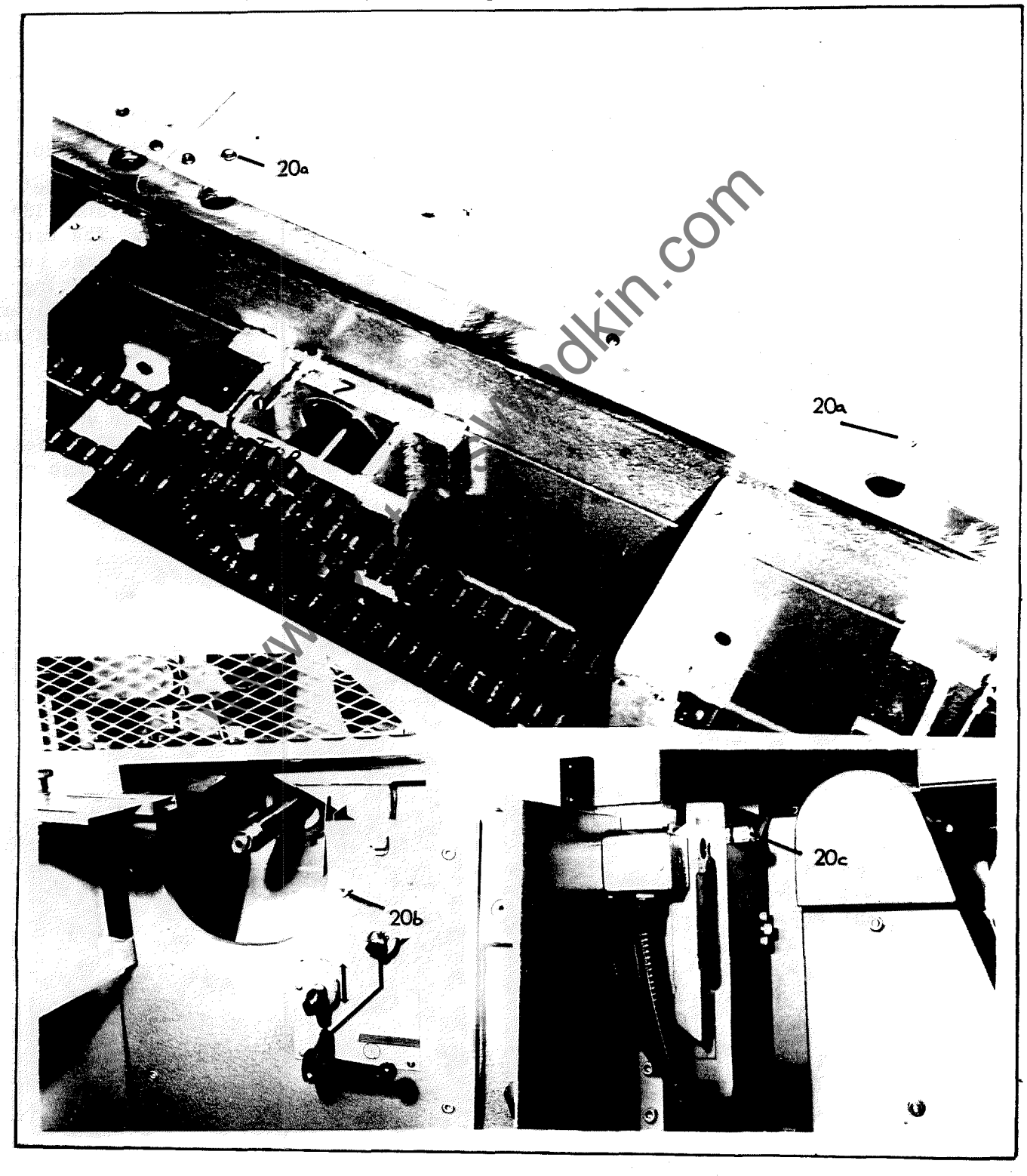


DAILY

Oil lubricator (s) 20a for raise and lower screws and slideways for top horizontal spindle or spindles. Oil lubricator 20b for first bottom horizontal spindle raise and lower screws and slideways, this is located at the front of the machine behind the door giving access to the cutterblock spindle.

Oil lubricator 20c for second bottom horizontal head, raise and lower screws and slideway, this is located at the rear of the machine.

Similar lubricators are provided in the event of the machine being fitted with either a slitting saw unit, throating head or universal head.



WEEKLY

Check quantity of oil in the manual lubricator, to fill the reservoir requires 0.57 Litres (one pint) of Wadkin Grade L4 oil.
Check the quantity of oil in the automatic lubricator, to fill the reservoir requires 1.7 litres (3 pints) of grade L4 oil.

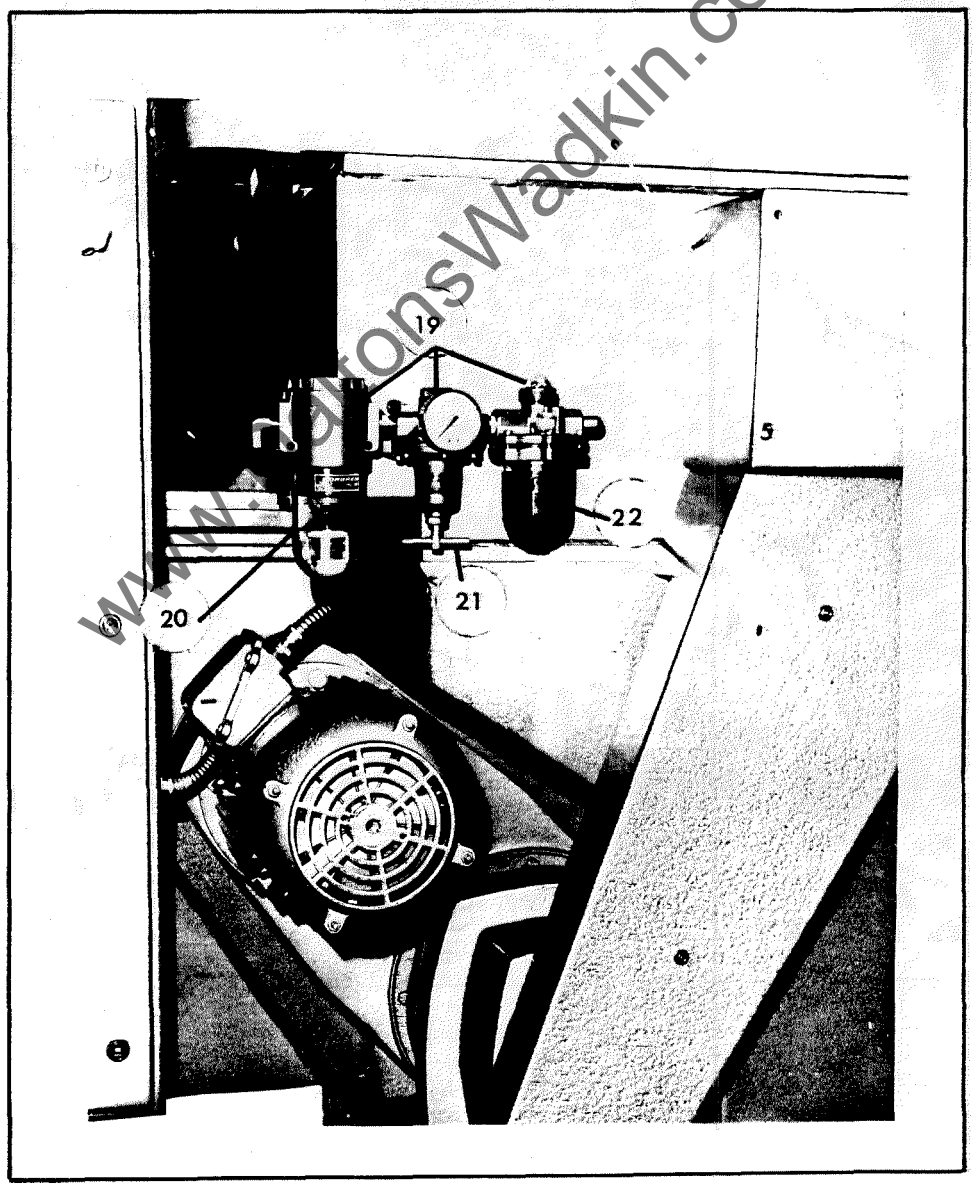
Pneumatics.

The pneumatic lubricating unit (19) is conveniently located at the rear of the machine. It comprises a filter (20) regulator and solenoid (21) and oil dispenser (22). The latter should be filled with Mobil Almo No.1 Oil. The oil dispenser should be adjusted to give one drip of oil every minute and the air pressure should be regulated to give a pressure of 5.63 kg/cm^2 (80 lbs./square inch).

IMPORTANT
If water condensation collects in the air line, it is recommended that an electrical extractor and water trap complete with turn off gauge be incorporated in the circuit immediately before the filter.

It is also strongly recommended that the valves be opened daily to ensure that water does not enter the air line.

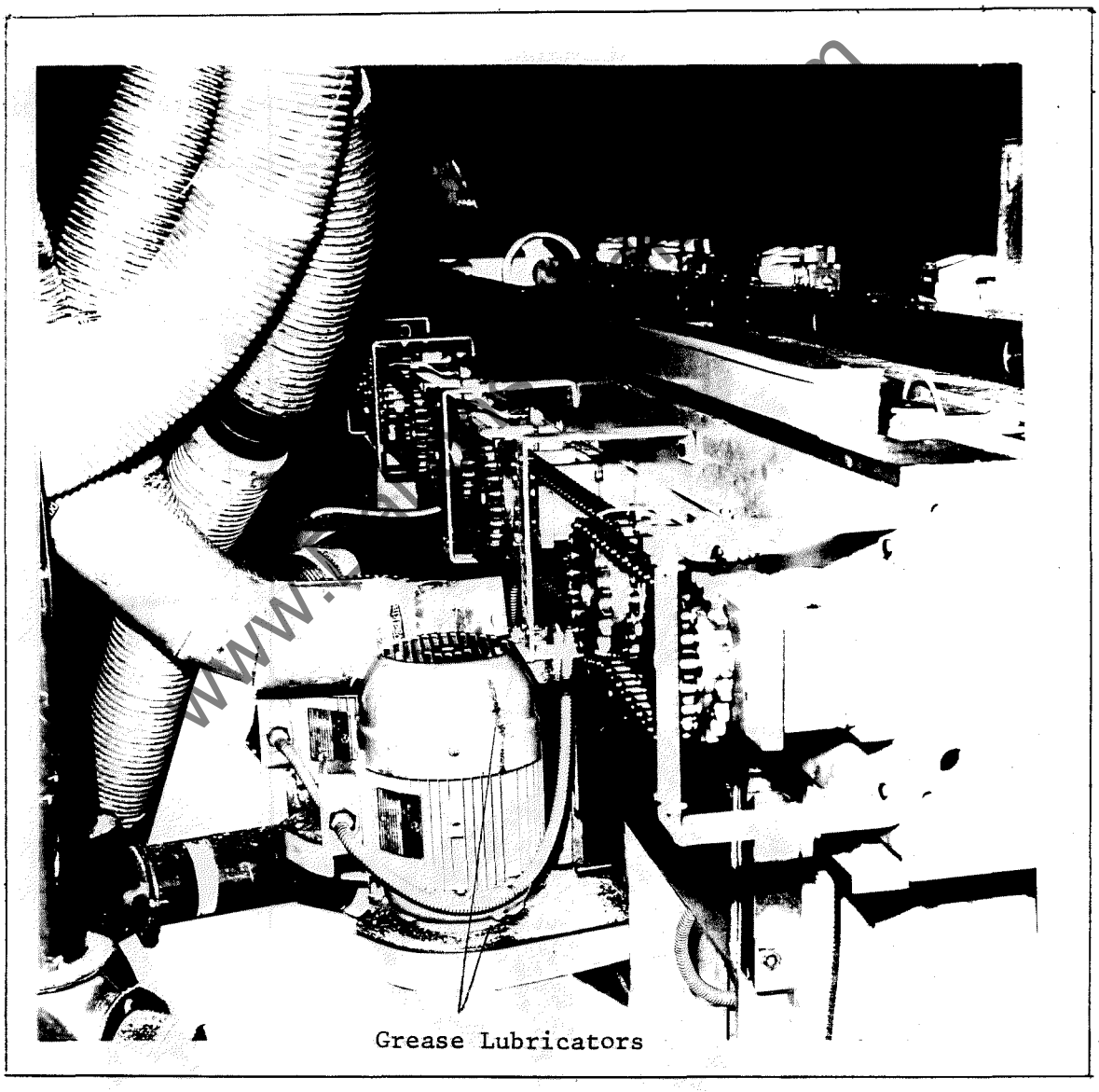
Oil machine slideways, all adjusting screws and vertical cutterblock spindle barrels with L4 oil.



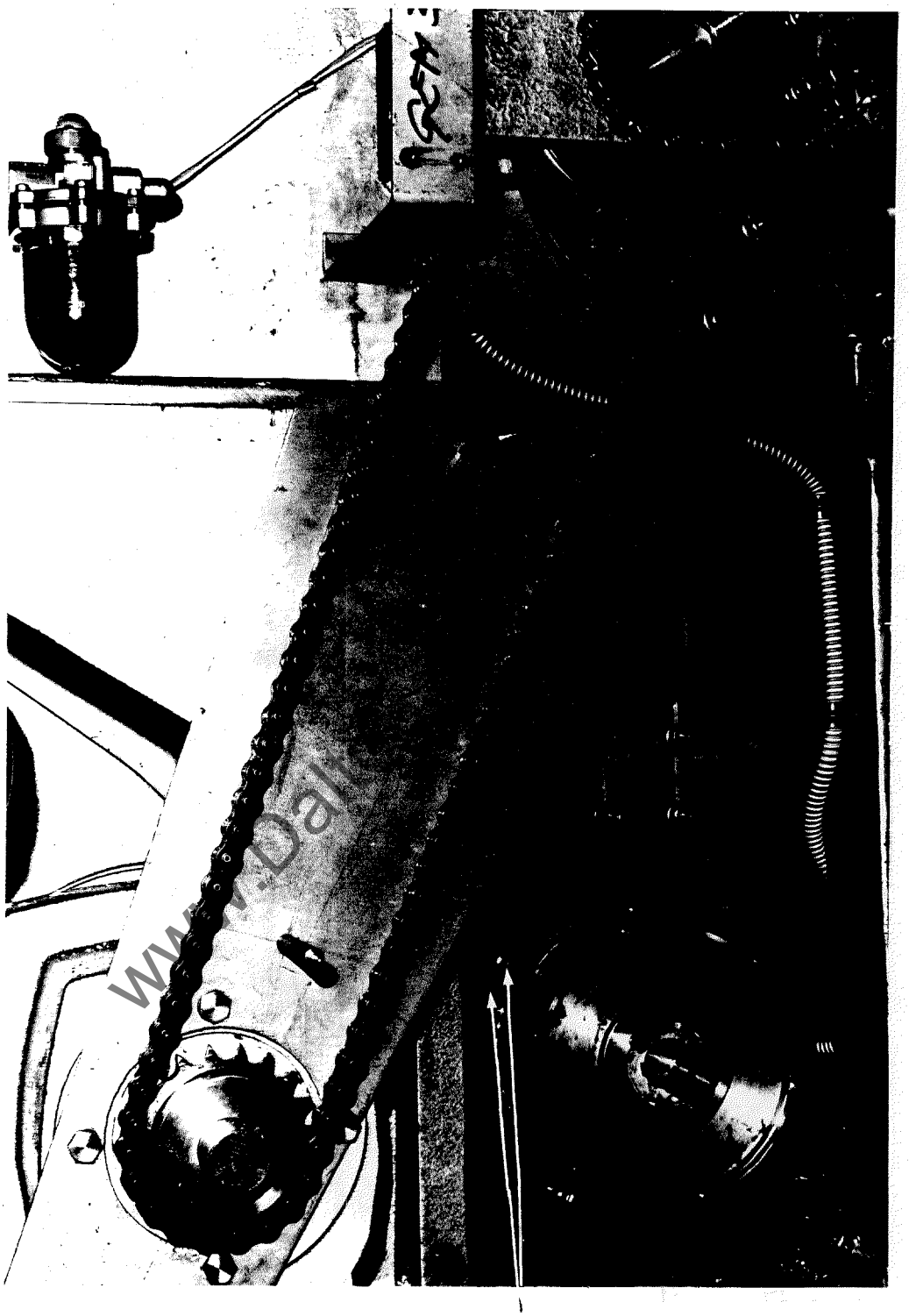
LUBRICATION SCHEDULE (cont.)

EVERY 3 MONTHS

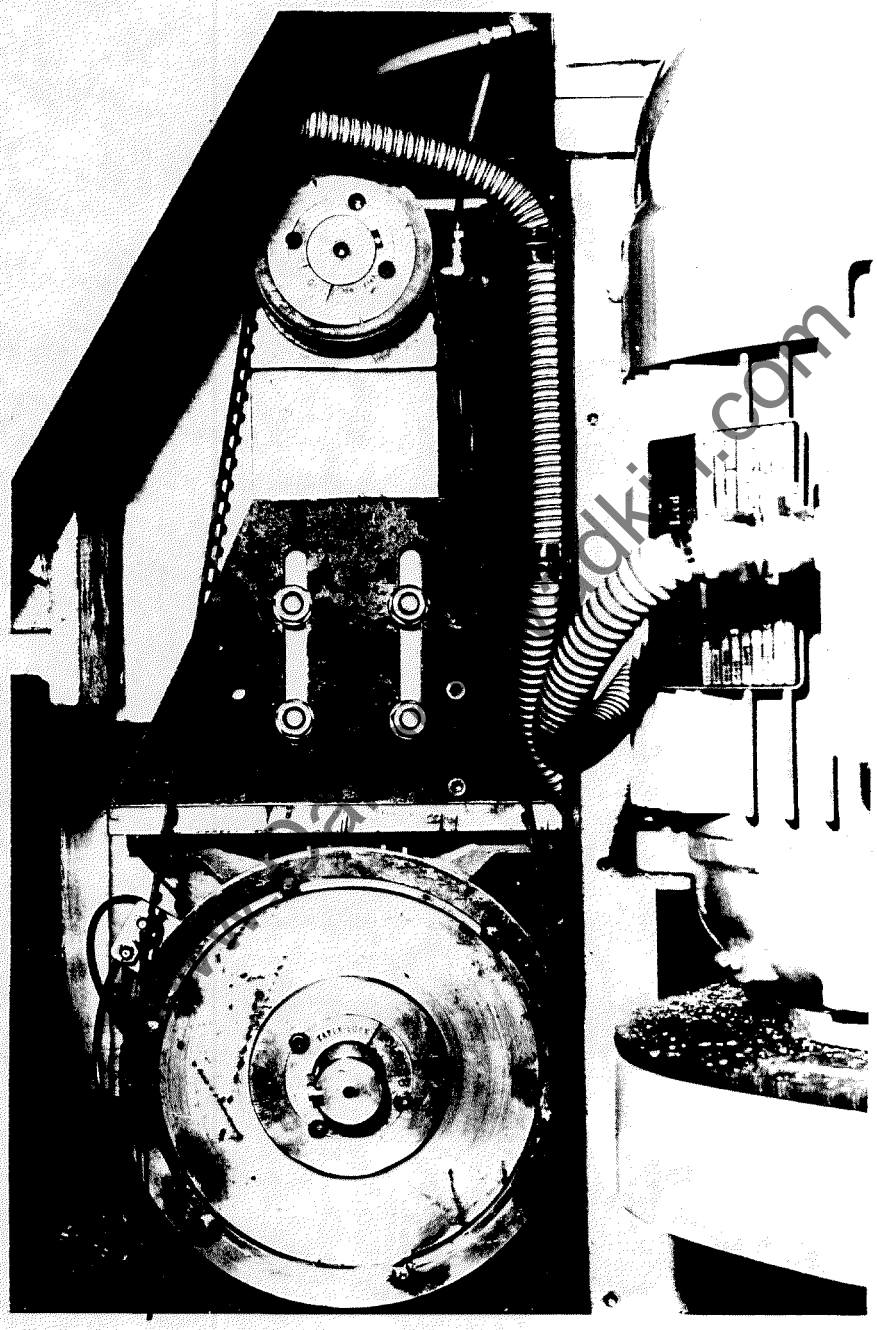
Lubricate all electric motors with Wadkin Grade L6 Grease at the nipples provided.



Grease Lubricators



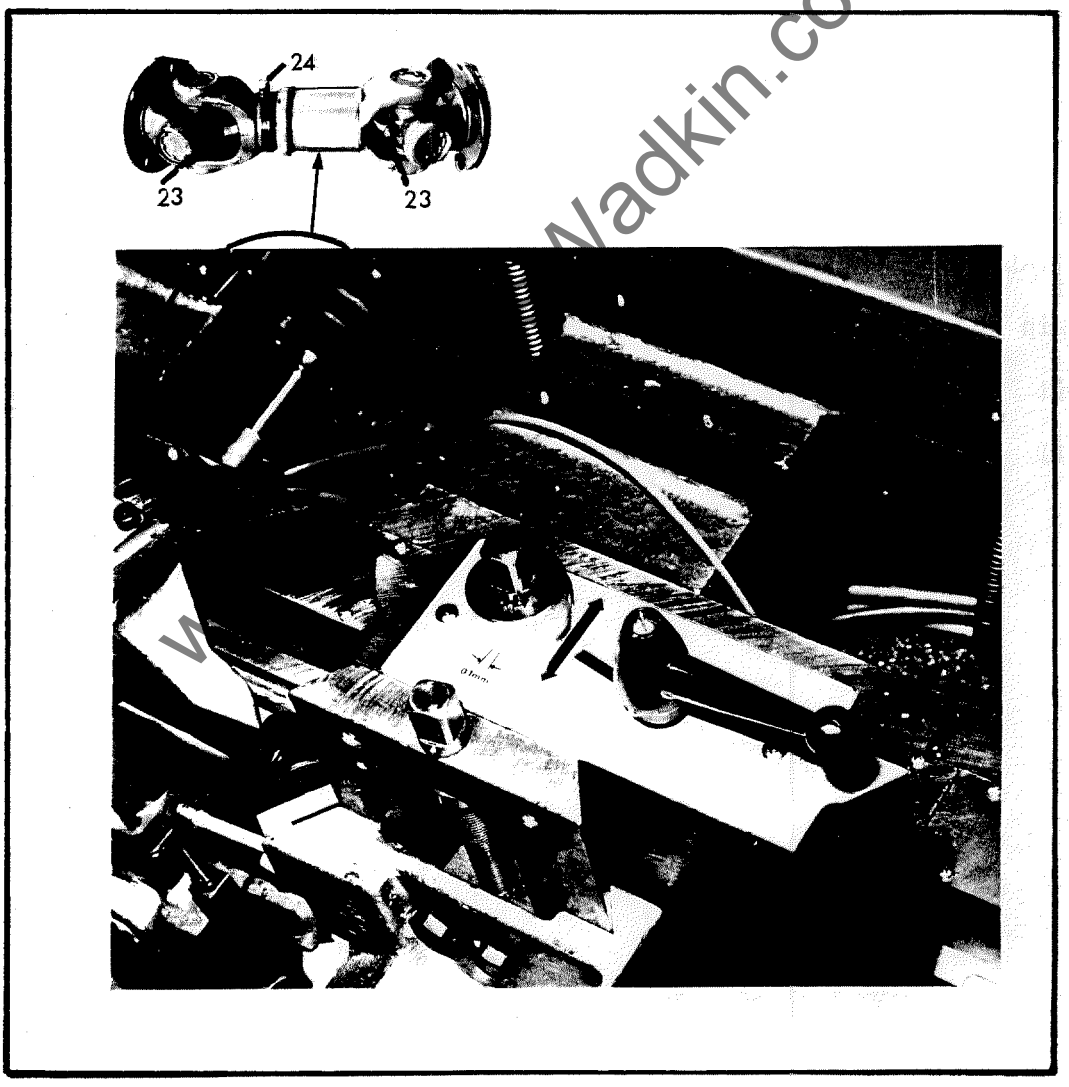
Grease Lubricators



Grease Lubricators

UNIVERSAL JOINTS

Each Universal Joint has three lubricating points. (23) which are oil lubricators and should be lubricated weekly with Wadkin Grade L4 oil and (24) which is a grease lubricator and should be greased monthly with Wadkin Grade L6 Grease.



LUBRICATION (cont.)

The gear box does not require any lubrication. It is despatched from the works filled with fluid gear grease - B.P. ENERGREASE FGOO EP and should not require any attention for 20,000 hours When this time arrives it will be necessary to remove the entire drive from the machine in the manner described on page 95

Replenish the grease via the combined grease filter/air ventilator 725 grams (1.6 lbs.) grease capacity.

ALTERNATIVE LUBRICANTS. (FOR GEAR BOX)

Supplier	Fluid Gear Grease.
Burmah/Castrol	Impervia TR Light
Duckham	Addgear OO
Esso	Fibrox EP 370
Mobil	Greaserex J 26
Shell	Retinax G
Edgar Vaughan	Cosmolube OEP
Walkers	Censo OO EP

EQUIVALENT LUBRICANTS (FOR MACHINE)

Wadkin	L1	L2	L4
Mobil	DTE Oil Light 24	Vactra extra heavy	Vactra Oil Heavy Medium
Shell	Vitrol 32	Vitrea 150 OR CS 150	Vitrea 68 OR CS 68
B.P.	Energol HLP 32	Energol HP 150	Energol HP 68

PAGES 110-121 INCLUSIVE WITHDRAWN

22nd October 1976

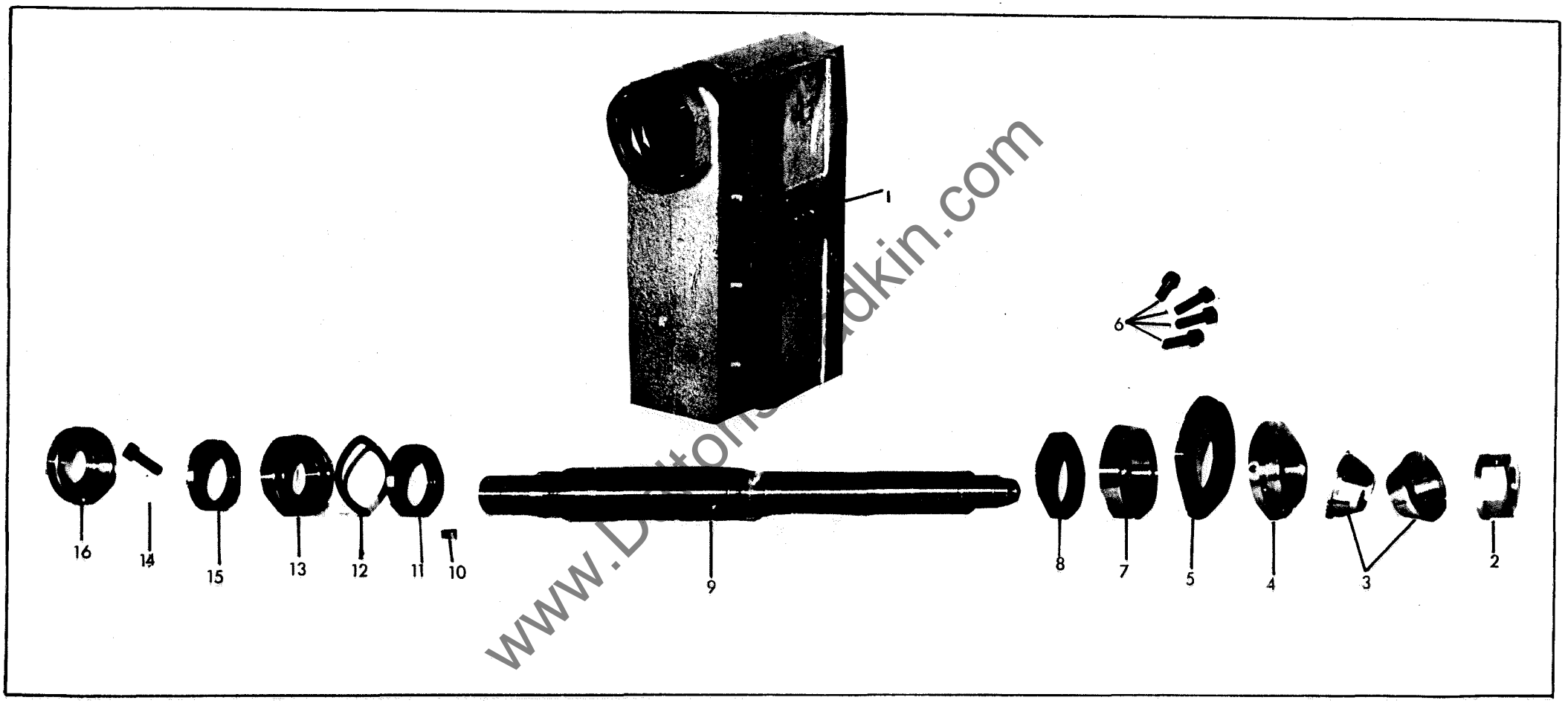
BOTTOM HORIZONTAL HEAD - 40MM DIA. SQUARE SHOULDERED SINGLE ROW RADIAL BEARINGS

	REF.NO.	DESCRIPTION	PART NO.
	1	Spindle Housing	GEM 4521
	2	Cutter Spindle Locknut	GEM 708
	3	Cutterblock Locking Cones	FAC 13
	4	Ball Bearing Locknut	GEM 3030
	5	End Cap	GEM 3044
	6	Socket Head Hexagon Screws M10 x 30mm long	KO5 25 210
Ø	7	Ball Bearing RHP 6209 TB EP7	KO6 20 106
	8	Labyrinth Sleeve for Front Bearing	GEM 3032
	9	Cutterblock Spindle	GEM 3788
	10	Key	KO5 23 113
	11	Grease Retainer	GEM 3792
	12	EMO Waved Washer EPL 60	K30 89 110
Ø	13	Ball Bearing RHP 6209 TB EP7	KO6 20 106
+	14	Hexagon Socket Countersunk Head Screw M4 x 10mm long	KO5 25 309
	15	Ball Bearing Locknut	GEM 3958
	16	Grease Retainer for Spindle Rearing	GEM 3791
*	17	Square Head Dowel 8mm dia. x 40mm long for GEM 4521	KO5 29 210
*	18	Hexagon Socket Screws (cup point) 2 for GEM 4521	KO5 26 112
*	19	Hexagon Socket Screw M5 x 20mm long 4 for GEM 3044	KO5 25 145

Ø "KLUBER" Grease Packed

* Not Shown

+ Not supplied since 16.9.76



CUTTERBLOCK SPINDLE (40mm dia.) ASSEMBLY WITH
LUBRICATED BEARINGS EXCLUSIVE OF DRIVING PULLEY
BOTTOM HORIZONTAL HEAD

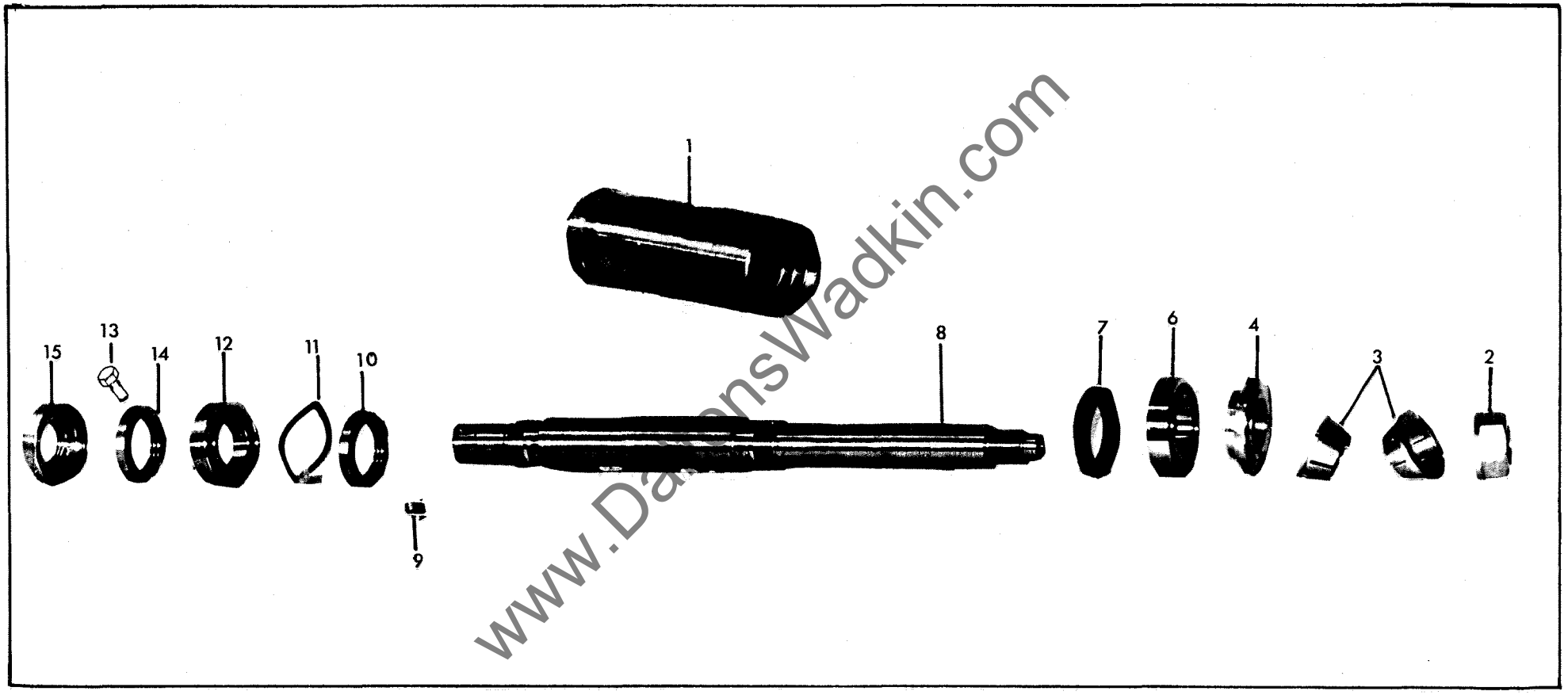
TOP HORIZONTAL HEAD - 40MM DIA. SQUARE SHOULDERED WITH SINGLE ROW RADIAL BEARINGS

	REF.NO.	DESCRIPTION	PART NO.
	1	Spindle Barrel	GEM 4318
	2	Cutterblock Spindle Locknut	GEM 707
	3	Cutterblock Locking Cones	FAC 13
	4	Ball Bearing Locknut	GEM 3030
	5	Ball Bearing Locknut (Not Shown)	GEM 3029
Ø	6	Ball Bearing RHP 6209 TB EP7	KO6 20 106
	7	Labyrinth Sleeve for Front Bearing	GEM 3032
	8	Cutterblock Spindle	GEM 3787
	9	Key	KO5 23 113
	10	Grease Retainer	GEM 3791
	11	EMO Waved Washer EPL 60	K30 89 110
Ø	12	Ball Bearing RHP 6209 TB EP7	KO6 20 106
+	13	Hexagon Socket Countersunk Head Screw M4 x 10mm long	KO5 25 309
	14	Ball Bearing Locknut	GEM 3957
	15	Grease Retainer for Spindle Lower Bearing	GEM 3792
*	16	Hexagon Socket Screws (cup point) M6 x 6mm long 2 for GEM 4318	KO5 26 112

Ø "KLUBER" Grease Packed

* Not Shown

+ Not supplied since 16.9.76



CUTTERBLOCK SPINDLE (40mm dia.) ASSEMBLY WITH PERMANENTLY LUBRICATED BEARINGS - EXCLUSIVE OF DRIVING PULLEY

TOP HORIZONTAL HEAD

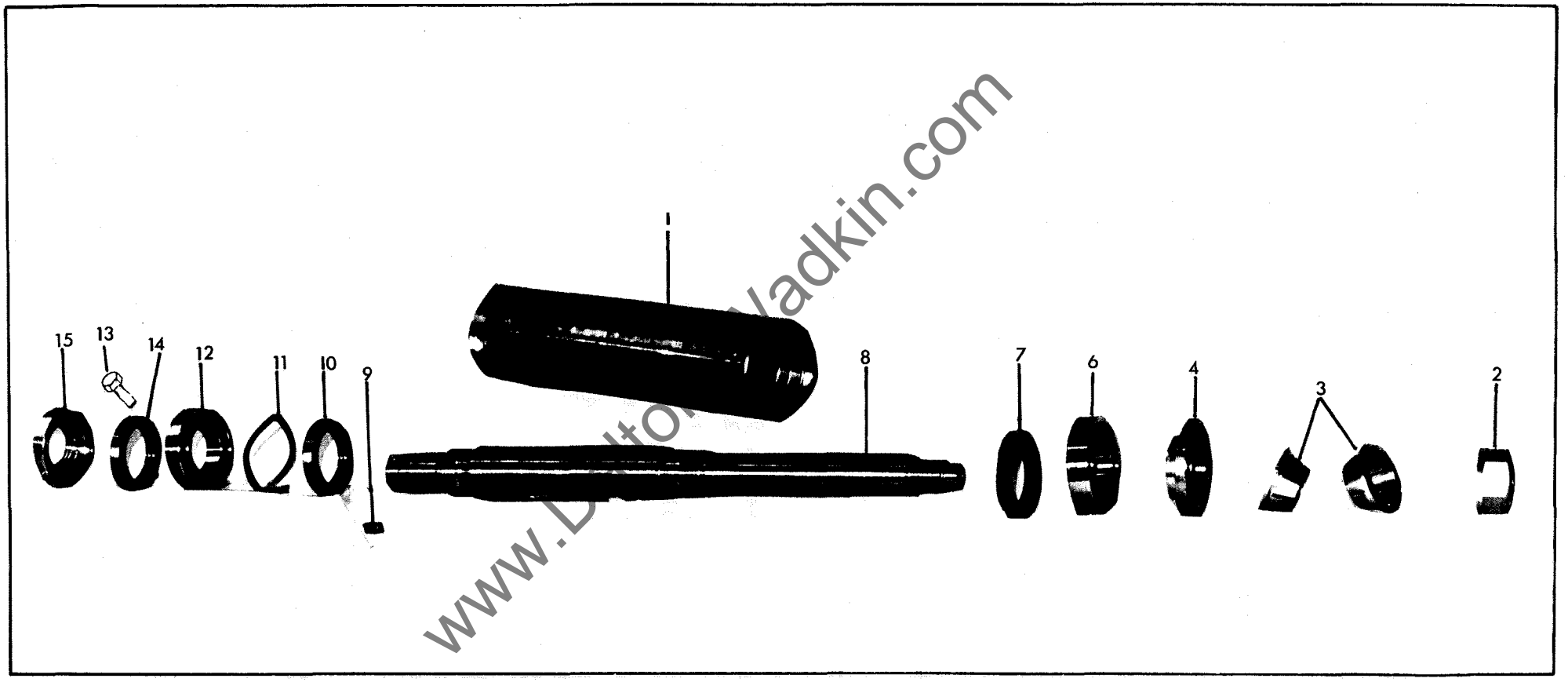
FENCE SIDE VERTICAL HEAD - 40MM DIA. SQUARE SHOULDERED WITH SINGLE ROW RADIAL BEARINGS

	REF.NO.	DESCRIPTION	PART NO.
	1	Spindle Barrel	GEM 4319
	2	Cutterblock Spindle Locknut	GEM 707
	3	Cutterblock Locking Cones	FAC 13
	4	Ball Bearing Locknut	GEM 3030
*	5	Ball Bearing Locknut	GEM 3029
Ø	6	Ball Bearing RHP 6209 TB EP7	KO6 20 106
	7	Labyrinth Sleeve for Front Bearing	GEM 3032
	8	Cutterblock Spindle	GEM 3758
	9	Key 10mm x 8mm x 32mm long	KO5 23 129
	10	Grease Retainer	GEM 3792
	11	EMO Waved Washer EPL 60	K30 89 110
Ø	12	Ball Bearing RHP 6209 TB EP7	KO6 20 106
+	13	Hexagon Socket Countersunk Head Screw M4 x 10mm long	KO5 25 309
	14	Ball Bearing Locknut	GEM 3957
	15	Grease Retainer for Spindle Lower Bearings	GEM 3791
*	16	Cup Point Hexagon Socket Screw M6 dia. x 6mm long 2 for GEM 4319	KO5 26 112
*	17	Fenner Vee Belt Spindle Pulley 95 PCD 2 Grooves 031Z 0133	KO5 78 235
*	18	Fenner Taper Lock Bush No. 1610 38mm bore	K30 77 186
*	19	Fenner Vee Belts SPZ 2000	K30 78 231

* Not Shown

Ø "KLUBER" Grease Packed

\+ Not supplied since 16.9.76



CUTTERBLOCK SPINDLE (40mm dia.) ASSEMBLY WITH PERMANENTLY LUBRICATED BEARINGS - EXCLUSIVE OF DRIVING PULLEY - FENCE SIDE VERTICAL HEAD

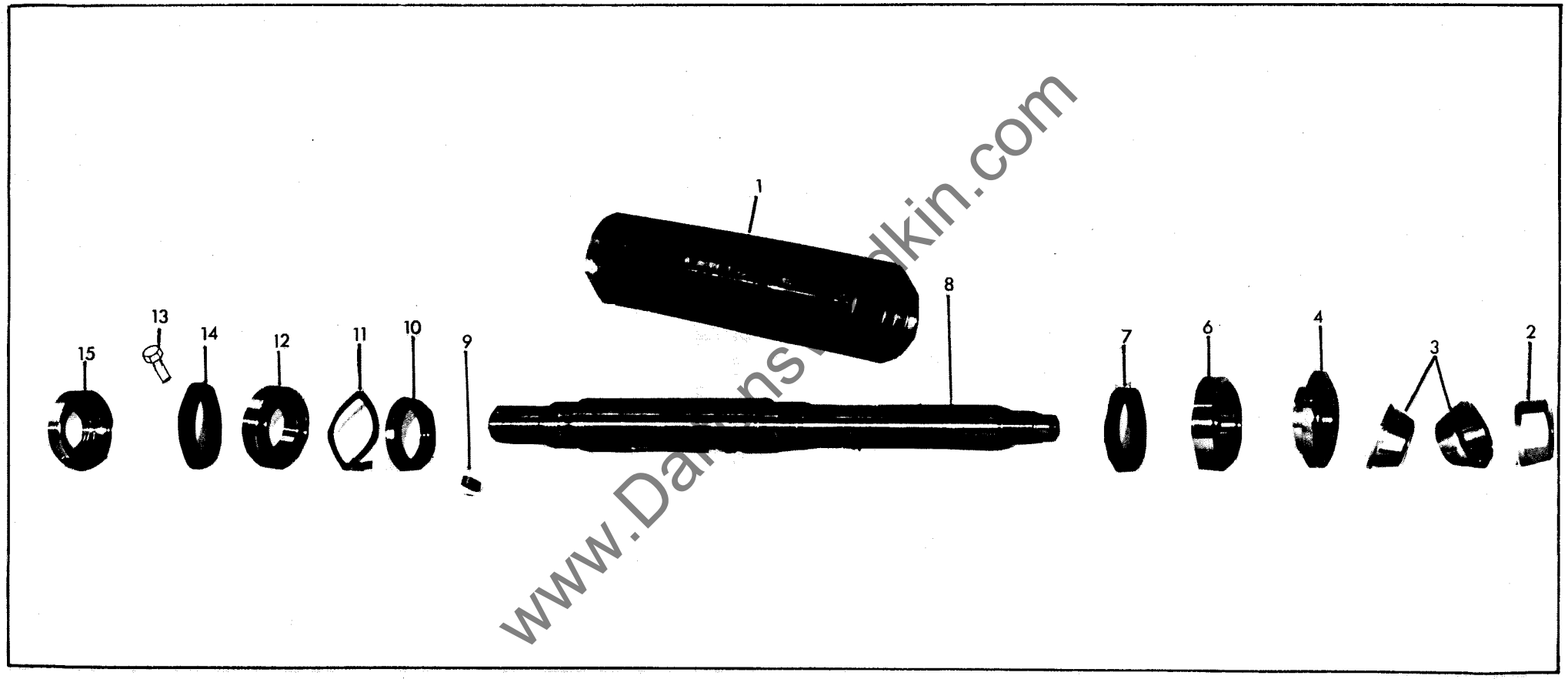
NEAR SIDE VERTICAL HEAD - 40MM DIA. SQUARE SHOULDERED WITH SINGLE ROW RADIAL BEARINGS

	REF.NO.	DESCRIPTION	PART NO.
	1	Spindle Barrel	GEM 4319
	2	Cutterblock Spindle Locknut	GEM 708
	3	Cutterblock Locking Cones	FAC 13
	4	Ball Bearing Locknut	GEM 3030
*	5	Ball Bearing Locknut	GEM 3029
Ø	6	Ball Bearing RHP 6209 TB EP7	K06 20 106
	7	Labyrinth Sleeve for Front Bearing	GEM 3032
	8	Cutterblock Spindle	GEM 3757
	9	Key	K05 23 129
	10	Grease Retainer	GEM 3792
	11	EMO Waved Washer EPL 60	K30 89 110
Ø	12	Ball Bearing RHP 6209 TB EP7	K06 20 106
+	13	Hexagon Socket Countersunk Head Screw M4 x 10mm long	K05 25 309
	14	Ball Bearing Locknut M45 x 1.5 LH	GEM 3957
	15	Grease Retainer for Spindle Lower Bearing	GEM 3791
*	16	Cup Point Hexagon Socket Screws M6 dia. x 6mm long 2 for GEM 4319	K05 26 112
*	17	Fenner Vee Belt Spindle Pulley 95 PCD 2 grooves 031Z 0132	K30 78 235
*	18	Fenner Taper Lock Bush No. 1610 38mm bore	K30 77 186
*	19	Fenner Vee Belts [illegible]Z 2540	K30 77 157

* Not Shown

Ø "KLUBER" Grease Packed

+ Not supplied since 16.9.76



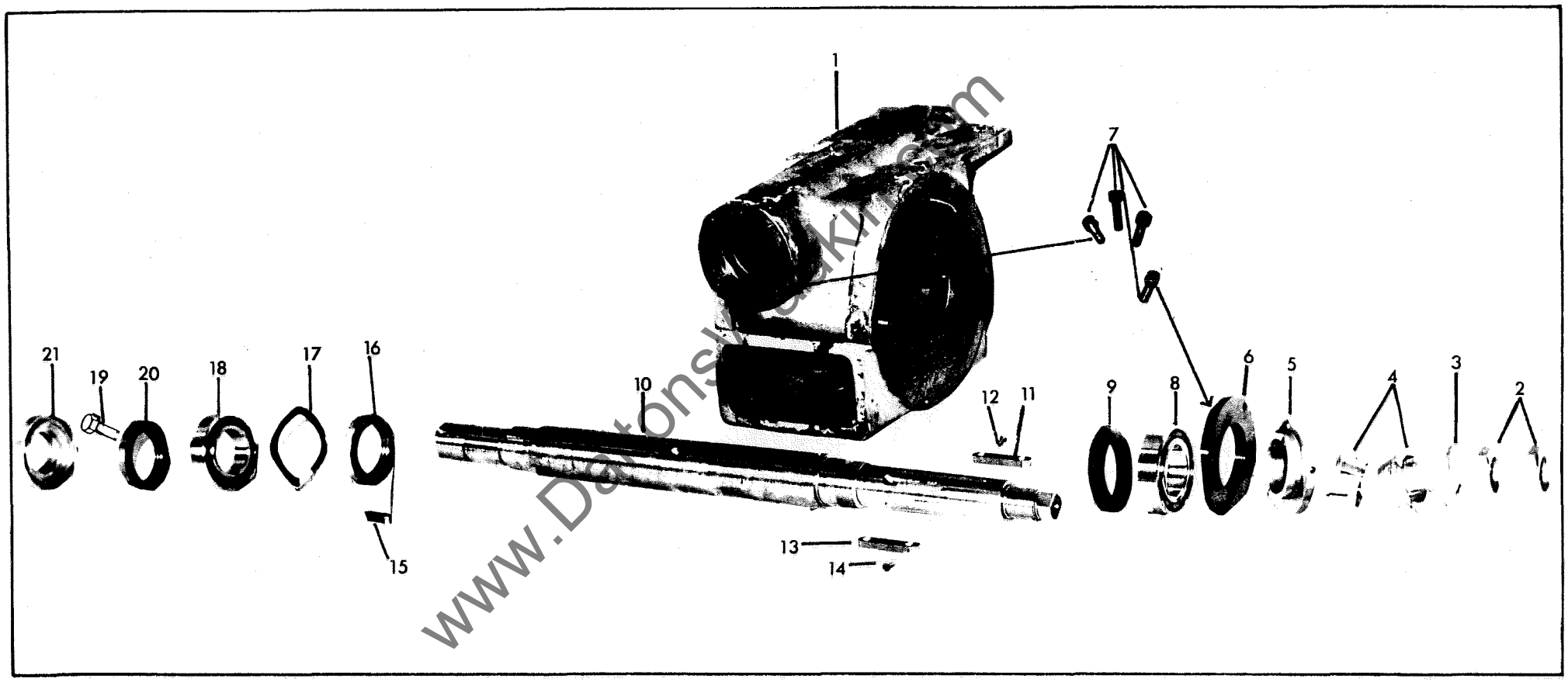
CUTTERBLOCK SPINDLE (40mm dia.) ASSEMBLY WITH PERMANENTLY LUBRICATED BEARINGS - EXCLUSIVE OF DRIVING PULLEY - NEAR SIDE VERTICAL HEAD

UNIVERSAL HEAD CUTTERBLOCK SPINDLE - 40MM DIA. SQUARE SHOULDERED WITH SINGLE ROW RADIAL BEARINGS

	REF.NO.	DESCRIPTION	PART NO.
	1	Spindle Housing	GEM 3787
	2	Locknuts	GEM 3442
	3	Washer	GEM 3443
	4	Cutterblock Locking Cones	FAC 13
	5	Ball Bearing Locknut	GEM 3030
	6	End Cap	GEM 3044
	7	Socket Hexagon Head Screws M5 x 20mm long	KO5 25 145
Ø	8	Ball Bearing RHP 6209 TB EP7	KO6 20 106
	9	Labyrinth Sleeve for Front Bearing	GEM 3032
	10	Cutterblock Spindle	GEM 3696
	11	Key	GEM 3790
	12	Socket Hexagon Head Countersunk Screw M4 x 12mm long	KO5 25 310
	13	Key	GEM 3790
	14	Socket Hexagon Head Countersunk Screw M4 x 12mm long	KO5 25 310
	15	Key	KO5 23 129
	16	Grease Retainer	GEM 3792
	17	EMO Waved Washer EPL 60	K30 89 110
Ø	18	Ball Bearing RHP 6209 TB EP7	KO6 20 106
+	19	Hexagon Socket Countersunk Screw M4 x 10mm long	KO5 25 309
	20	Ball Bearing Locknut M45 x 1.5 LH	GEM 3957
	21	Grease Retainer for Spindle Rear Bearing	GEM 3791
*	22	Hexagon Screw - cup point - M6 dia. x 6mm long 2 for GEM 3789	KO5 26 112
*	23	Fenner Vee Belt Spindle Pulley 95 PCD 2 grooves 031Z 0132	K30 78 235
*	24	Fenner Taper Lock Bush No. 161D 38mm bore	K30 77 186
*	25	Fenner Vee Belts SPZ 940	K30 77 156

Ø "KLUBER" Grease Packed

\+ Not supplied since 16.9.76



CUTTERBLOCK SPINDLE (40mm dia.) ASSEMBLY WITH PERMANENTLY LUBRICATED BEARINGS - EXCLUSIVE OF DRIVING PULLEY - UNIVERSAL HEAD

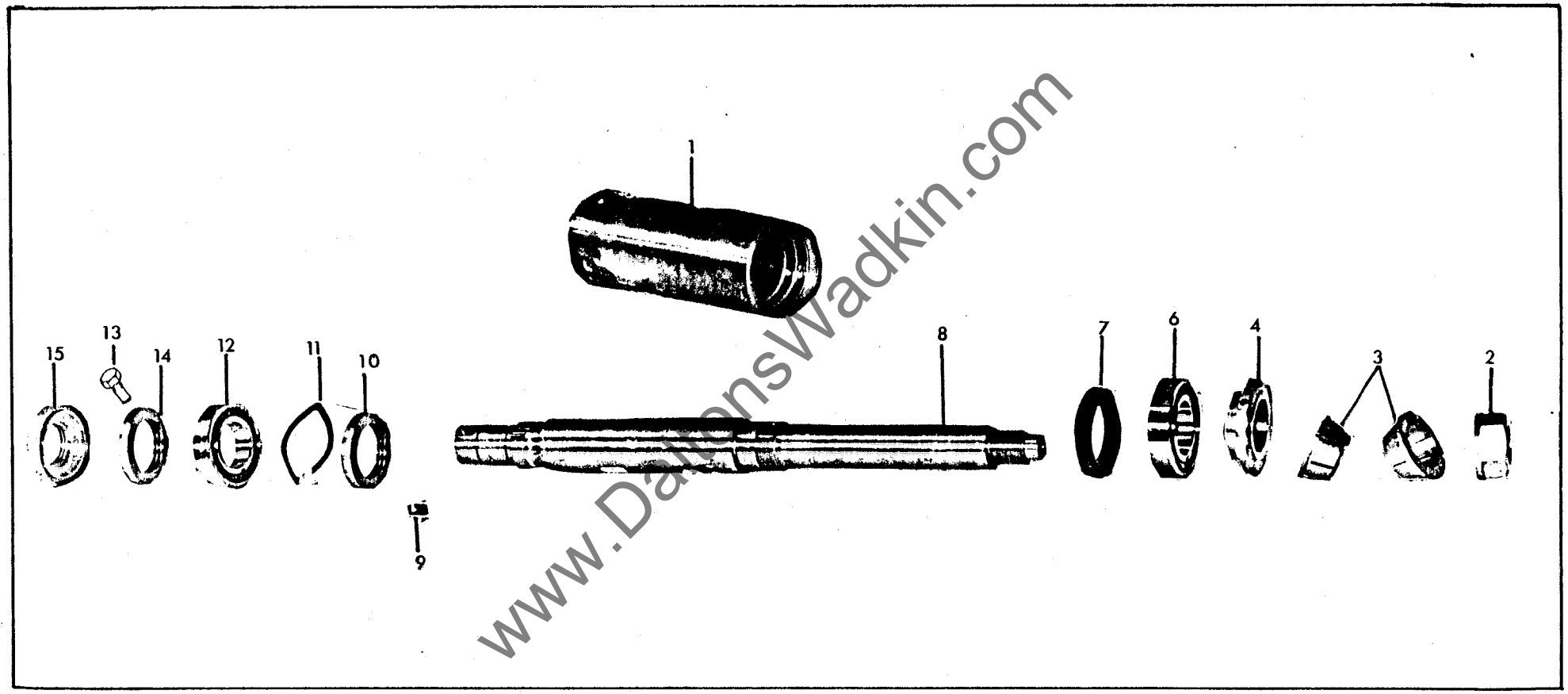
TOP HORIZONTAL HEAD - 40MM DIA. SQUARE SHOULDERED WITH OUTBOARD BEARINGS AND SINGLE ROW RADIAL BEARINGS

	REF.NO.	DESCRIPTION	PART NO.
	1	Spindle Barrel	GEM 4318
	2	Cutterblock Spindle Locknut	GEM 707
	3	Cutterblock Locking Cones	FAC 13
	4	Ball Bearing Locknut	GEM 3030
*	5	Ball Bearing Locknut	GEM 3029
Ø	6	Ball Bearing RHP 6209 TB EP7	K06 20 106
	7	Labyrinth Sleeve for Front Bearing	GEM 3032
	8	Cutterblock Spindle	GEM 4543
	9	Key	GEM 4255
	10	Grease Retainer	GEM 3791
	11	EMO Waved Washer EPL 60	K30 89 110
Ø	12	Ball Bearing RHP 6209 TB EP7	K06 20 106
+	13	Hexagon Socket Countersunk Head Screw M4 x 10mm long	K05 25 309
	14	Ball Bearing Locknut	GEM 3957
	15	Grease Retainer for Spindle Lower Bearing	GEM 3792
*	16	Hexagon Socket Screws (cup point) M6 x 6mm long 2 for GEM 4318	K05 26 112

* Not Shown

Ø "KLUBER" Grease Packed

\+ Not supplied since 16.9.76



CUTTERBLOCK SPINDLE (40mm dia.) ASSEMBLY WITH PERMANENTLY LUBRICATED BEARINGS - EXCLUSIVE OF DRIVING PULLEY

TOP HORIZONTAL HEAD

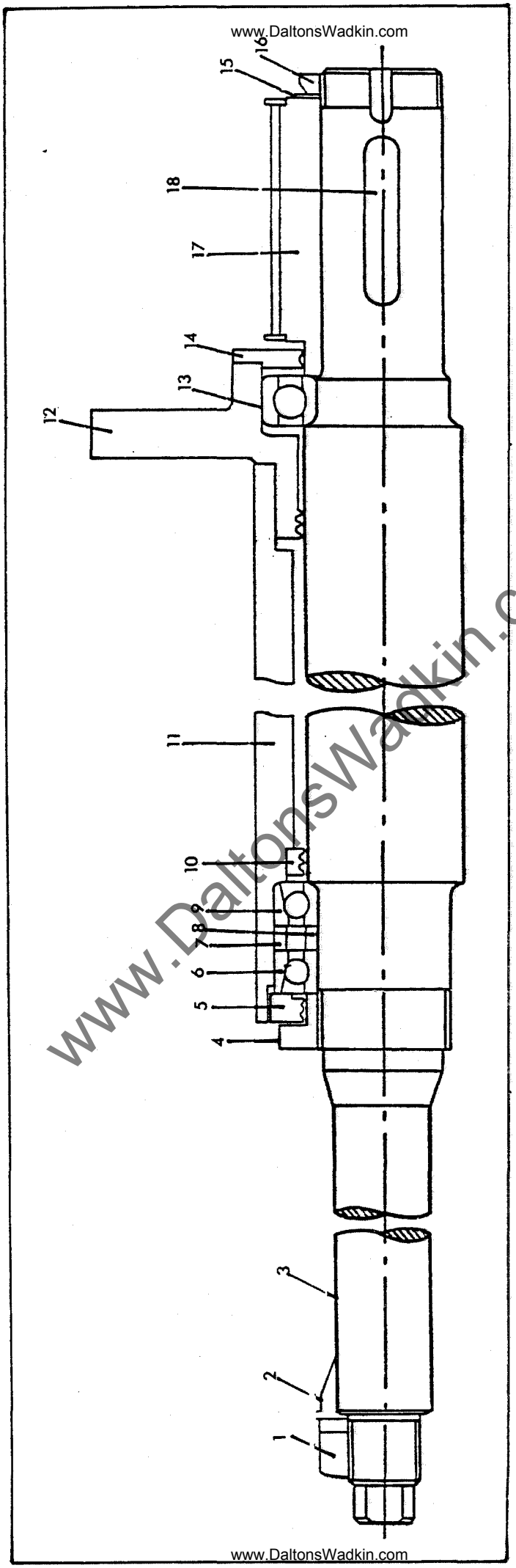
TOP HORIZONTAL SPINDLE - 40MM. DIA. SOLID CONE WITH OUTBOARD BEARINGS AND ANGULAR CONTACT BEARINGS

	REF.NO:	DESCRIPTION	PART NO:
	1	Spindle Locknut	GEM 707
	2	Cutterblock locking cones	FAC 13
	3	Top horizontal cutterblock spindle	GEM 4541
	4	Bearing locknut	GEM 3808
	5	Bearing locknut and grease retainer	GEM 3810
Ø	6	Paired angular contact bearing 90mm. O.D. x 55mm. bore x 18mm. wide RHP 7011 EP7	KO6 20 132
	7	Outer bearing spacer	GEM 3800
	8	Inner bearing spacer	GEM 3801
Ø	9	Paired angular contact bearing 90mm. O.D. x 55mm. bore x 18mm. wide RHP 7011 EP7	KO6 20 132
	10	Grease retainer	GEM 3802
	11	Barrel for top head spindle	GEM 4835
≠	12		
Ø	13	Single row radial ball bearing 100mm. O.D. x 55mm. bore x 21mm.wide RHP 6211 TB EP7	KO6 20 110
	14	Grease retainer	GEM 3802
	15	Tab lockwasher for M50. nut	KO5 27 260
	16	Chamfered notch nut M50. x 1.5 pitch	KO5 27 211
	17	Spindle pulley	GEM 4546
	18	Key 14mm. x 9mm. x 70mm. long	KO5 23 187
*	19	"FENNER" vee belts Z 1340	K30 77 126
*	20	Square head dowel 8mm. dia. x 40mm. long (1) FOR GEM 4835	KO5 29 210

Ø "KLUBER" grease packed

≠ Not supplied

* Not shown



TOP HORIZONTAL SPINDLE

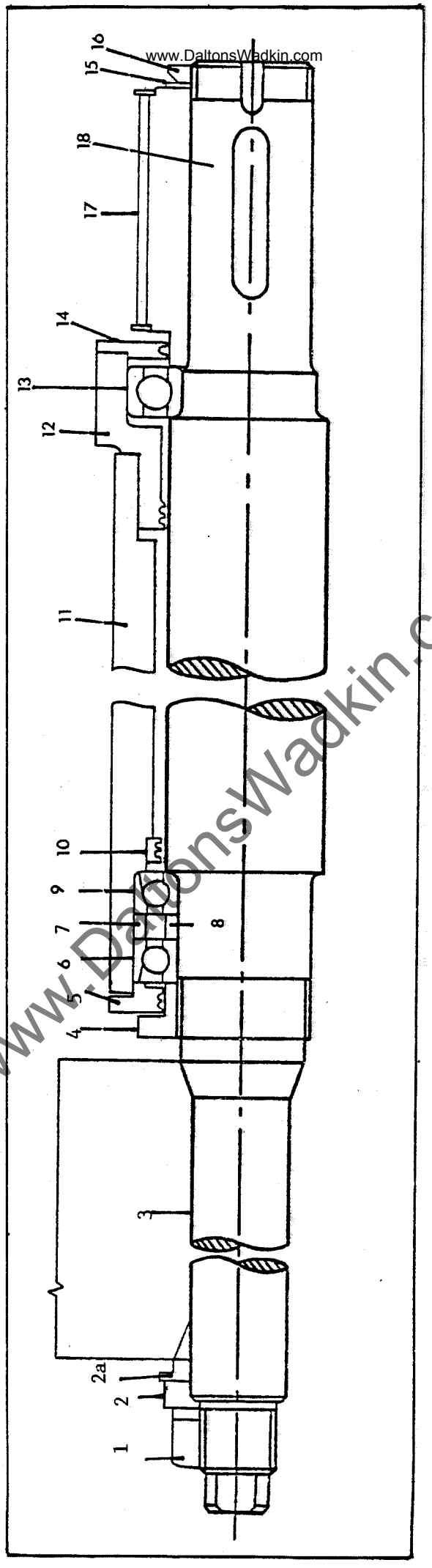
BOTTOM HORIZONTAL CUTTERBLOCK SPINDLE - 40MM DIA. WITH SOLID CONES AND HEAVY DUTY ANGULAR CONTACT BEARINGS

	REF.NO.	DESCRIPTION	PART NO.
	1	Spindle Locknut	GEM 708
	2	Spacer	GEM 3954
	2a	Cutterblock Locking Cones	FAC 13
	3	Bottom Horizontal Cutterblock Spindle	GEM 4399
	4	Bearing Locknut	GEM 3809
	5	Bearing Locknut and Grease Retainer	GEM 3827
Ø	6	Paired Angular Contact Bearing 90mm O/D x 55mm bore x 21mm wide RHP 7011 EP7	KO6 20 132
	7	Outer Bearing Spacer	GEM 3800
	8	Inner Bearing Spacer	GEM 3801
Ø	9	Paired Angular Contact Bearing 90mm O/D x 55mm bore x 21mm wide RHP 7011 EP7	KO6 20 132
	10	Grease Retainer	FEM 3802
	11	Spindle Housing	GEM 4837
≠	12		
Ø	13	Single Row Radial Ball Bearing 100mm O/D x 55mm bore x 21mm wide RHP 6211 EP7	KO6 20 110
	14	Grease Retainer for Pulley	GEM 3811
	15	Tab Lockwasher for M50 Nut	KO5 27 260
	16	Chamfered Notch Nut M50 x 1.5 pitch	KO5 27 211
	17	Spindle Pulley	GEM 4546
	18	Key 14mm x 9mm x 70mm long	KO5 23 187
*	19	Fenner Vee Belts SPZ 1340	K30 77 126
*	20	Square Head Dowel 8mm dia. x 40mm long 1 for GEM 4837	KO5 29 210

Ø "KLUBER" Grease Packed

≠ Not Supplied

* Not Shown



BOTTOM HORIZONTAL SPINDLE

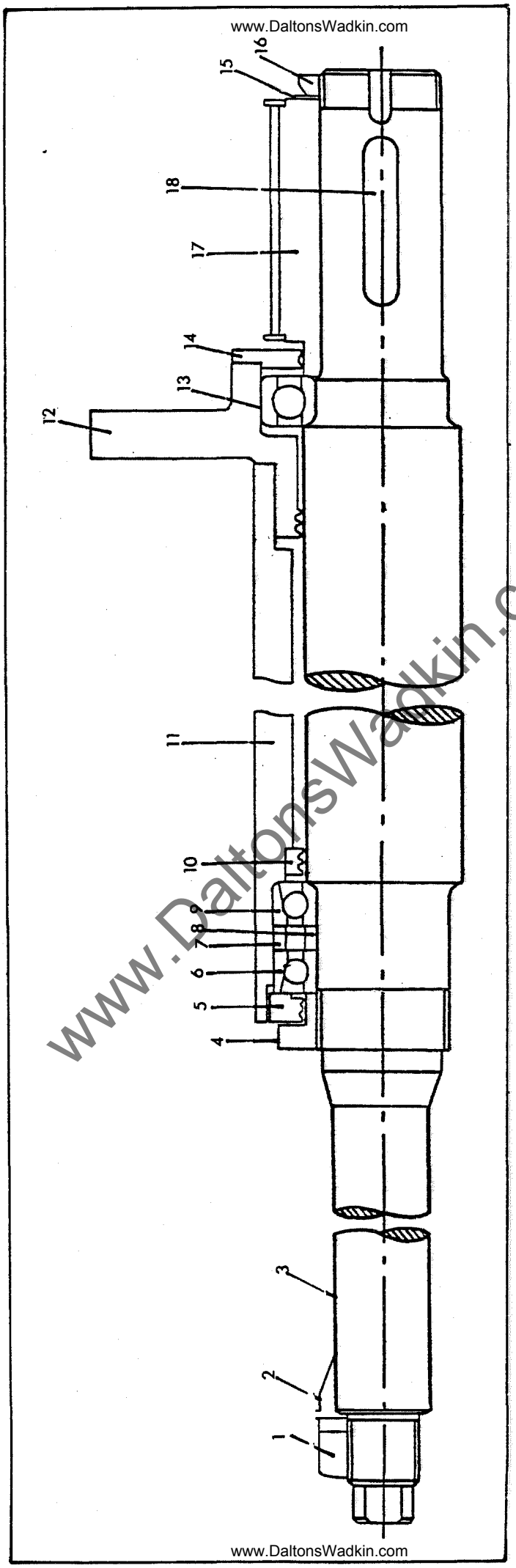
TOP HORIZONTAL SPINDLE - 40MM DIA. SOLID CONES WITH HEAVY DUTY ANGULAR CONTACT BEARINGS

	REF.NO.	DESCRIPTION	PART NO.
	1	Spindle Locknut	GEM 707
	2	Cutterblock Locking Cones	FAC 13
	3	Top Horizontal Cutterblock Spindle	GEM 4364
	4	Bearing Locknut	GEM 3808
	5	Bearing Locknut and Grease Retainer	GEM 3810
Ø	6	Paired Angular Contact Bearing 90mm O/D x 55mm bore x 18mm wide RHP 7011 EP7	KO6 20 132
	7	Outer Bearing Spacer	GEM 3800
	8	Inner Bearing Spacer	GEM 3801
Ø	9	Paired Angular Contact Bearing 90mm O/D x 55mm bore x 18mm wide RHP 7011 EP7	KO6 20 132
	10	Grease Retainer	GEM 3802
	11	Barrel for Top Head Spindle	GEM 4835
≠	12		
Ø	13	Single Row Radial Ball Bearing 100mm O/D x 55mm bore x 21mm wide RHP 6211 TB EP7	KO6 20 110
	14	Grease Retainer	GEM 3802
	15	Tab Lockwasher for M50 Nut	KO5 27 260
	16	Chamfered Notch Nut M50 x 1.5 pitch	KO5 27 211
	17	Spindle Pulley	GEM 4546
	18	Key 14mm x 9mm x 70mm long	KO5 23 187
*	19	Fenner Vee Belts SPZ 1340	K30 77 126
*	20	Square Head Dowel 8mm dia. x 40mm long 1 for GEM 4835	KO5 29 210

Ø "KLUBER" Grease Packed

≠ Not Supplied

* Not Shown



TOP HORIZONTAL SPINDLE

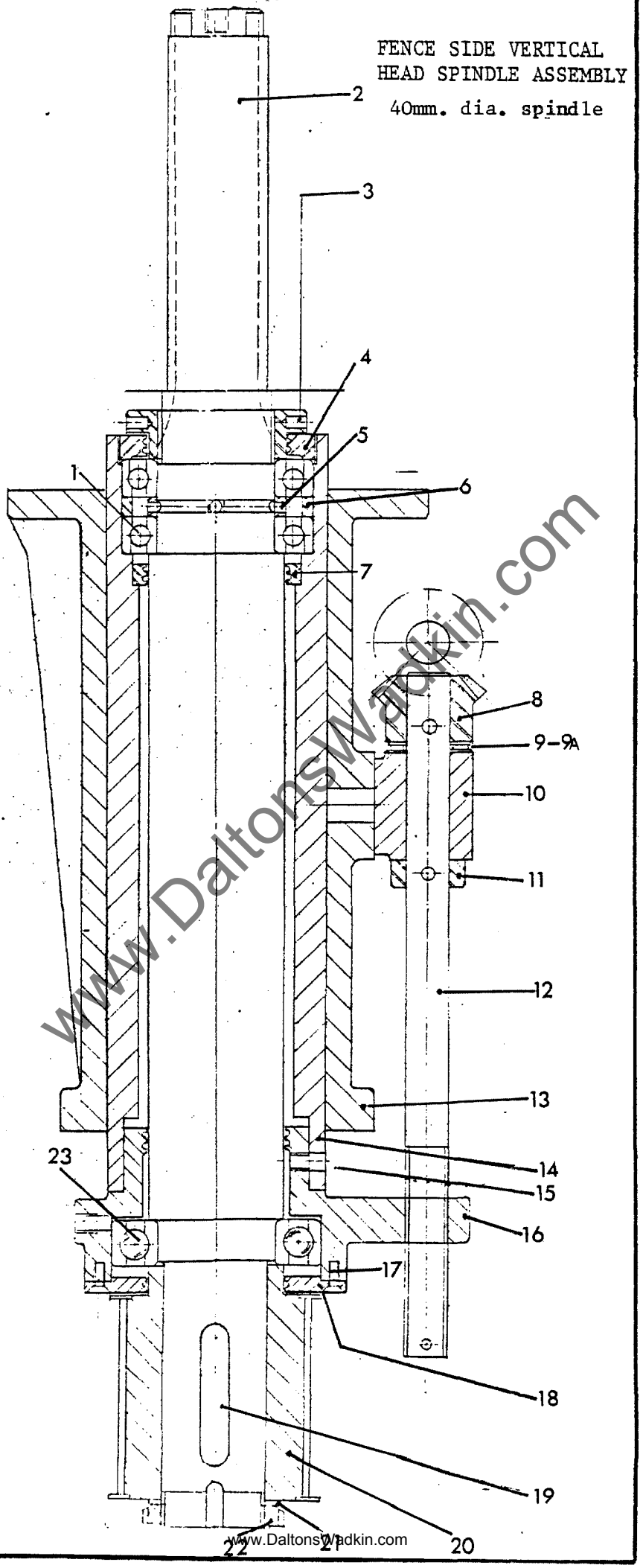
FENCE SIDE VERTICAL SPINDLE - 40MM DIA. SOLID CONE WITH HEAVY DUTY ANGULAR CONTACT BEARINGS

	REF.NO.	DESCRIPTION	PART NO.
Ø	1	Angular Contact Bearing 90mm O/D x 55mm bore x 18mm wide RHP 7011 TDU EP7	KO6 20 132
	2	Fence Side Vertical Spindle	GEM 4662
	3	Bearing Locknut	GEM 3808
	4	Bearing Locknut and Grease Retainer	GEM 3810
	5	Inner Bearing Spacer	GEM 3801
	6	Outer Bearing Spacer	GEM 3800
	7	Grease Retainer	GEM 3802
	8	Mitre Gear	GEM 2519
	9	INA Thrust Bearing AXK 2035	KO6 10 212
	9a	INA Thrust Washer 2035	KO6 10 252
	10	Mitre Gear Bracket for Side Head Vertical Adjustment	GEM 3122
	11	Collar 20mm dia.	KO5 28 215
	12	Vertical Screw for Fence Side Head Vertical Adjustment	GEM 3122
	13	Carriage for Side Head	GEM 3818
	14	Side Head Barrel	GEM 3817
	15	Locating Screw M8	GEM 3889
	16	Bearing Housing and Adjuster	GEM 3816
	17	Hexagon Socket Countersunk Head Screw M5 x 12mm long	KO5 25 317
	18	Grease Retainer for Pulley	GEM 3811
	19	Key 14mm x 9mm x 70mm long	KO5 23 187
	20	Fenner Vee Belt Pulley 95 PCD 2 grooves 031Z 0132	KO5 78 235
	21	Tab Lockwasher for M50 Nut	KO5 27 260
	22	Chamfered Notch Nut M50 x 1.5 pitch	KO5 27 211
Ø	23	Single Row Radial Ball Bearing 100mm O/D x 55mm bore x 21mm wide RHP 6211 TB EP7	KO6 20 110
*	24	Fenner Taper Lock Bush No. 1610 38mm bore	K30 77 186
*	25	Fenner Vee Belts SPZ 2000	K30 78 231

Ø "KLUBER" Grease Packed

* not shown

FENCE SIDE VERTICAL
HEAD SPINDLE ASSEMBLY
40mm. dia. spindle



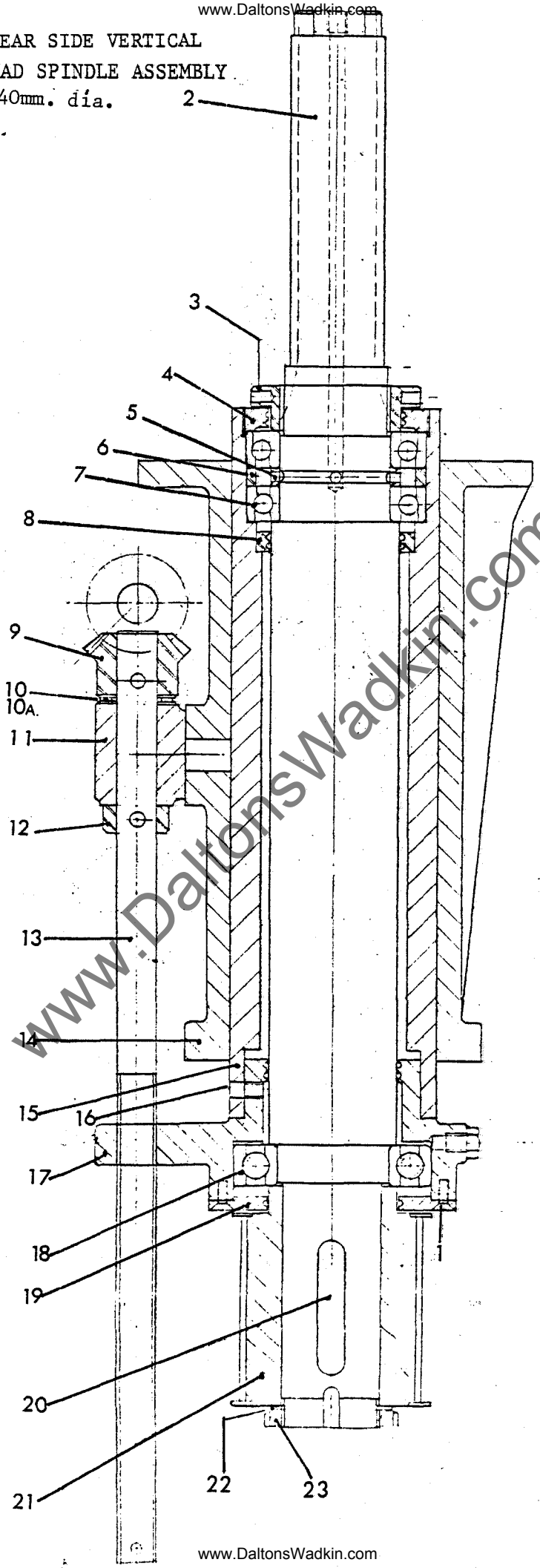
NEAR SIDE CUTTERBLOCK SPINDLE - 40MM DIA. SOLID CONES WITH HEAVY DUTY ANGULAR CONTACT BEARINGS

	REF.NO.	DESCRIPTION	PART NO.
	1	Hexagon Socket Countersunk Head Screws M5 x 12mm long	KO5 25 317
	2	Near Side Vertical Spindle	GEM 4442
	3	Bearing Locknut	GEM 3809
	4	Bearing Locknut and Grease Retainer	GEM 3810
	5	Inner Bearing Spacer	GEM 3801
	6	Outer Bearing Spacer	GEM 3800
Ø	7	Angular Contact Bearing 90mm O/D x 55mm bore x 18mm wide RHP 7011 TDU EP7	KO6 20 132
	8	Grease Retainer	GEM 3802
	9	Mitre Gear	GEM 2519
	10	INA Thrust Bearing AXK 2035	KO6 10 212
	10a	INA Thrust Washer 2035	KO6 10 252
	11	Mitre Gear Bracket for Side Head Vertical adjustment	GEM 3121
	12	Collar 20mm dia.	KO5 28 211
	13	Vertical Screw for Near Side Head Vertical Adjustment	GEM 3123
	14	Carriage for Side Head	GEM 3818
	15	Side Head Barrel	GEM 3817
	16	Locating Screw M8	GEM 3889
	17	Bearing Housing	GEM 3816
Ø	18	Single RowrRadial Ball Bearing 100mm O/D x 55mm bore x 21mm wide RHP 6211 TB EP7	KO6 01 309
	19	Grease Retainer for Pulley	GEM 3811
	20	Key 14mm x 9mm x 70mm long	KO5 23 187
	21	Fenner Vee Belt Pulley 95PCD 2grooves 031Z 0132	KO5 78 235
	22	Tab Lockwasher for M50 Nut	KO5 27 260
	23	Chamfered Notch Nut M50 x 1.5 pitch	KO5 27 211
*	24	Fenner Taper Lock Bush No. 1610 38mm bore	K30 77 186
*	25	Fenner Vee Belts SPZ 2000	K30 78 231

Ø "KLUBER" Grease Packed

* not shown

NEAR SIDE VERTICAL
HEAD SPINDLE ASSEMBLY
40mm. dia.



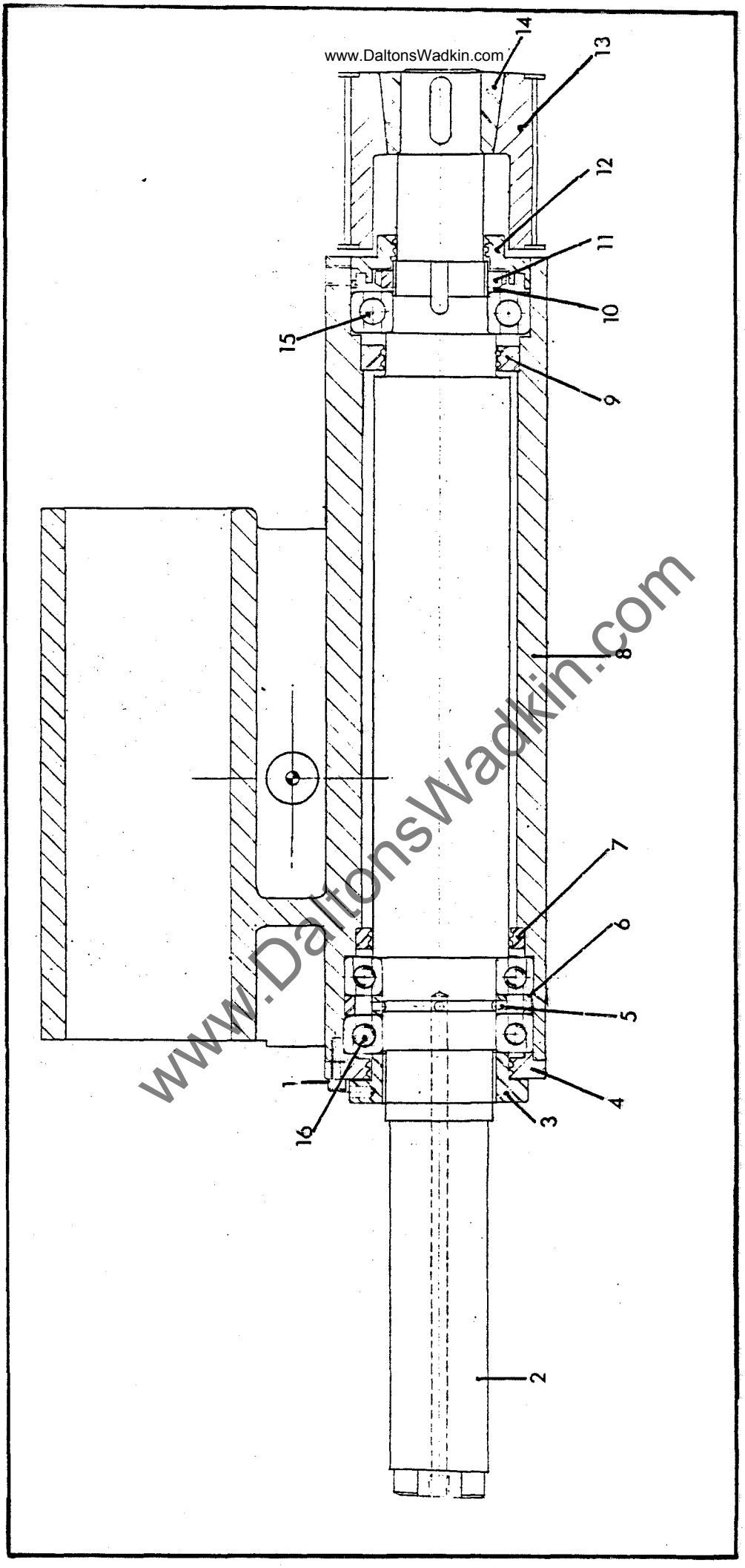
UNIVERSAL HEAD SPINDLE - 40MM DIA. SOLID WITH HEAVY DUTY ANGULAR CONTACT BEARINGS

	REF.NO.	DESCRIPTION	PART NO.
	1	Hexagon Socket Countersunk Head Screws M5 x 12mm long	KO5 25 317
	2	Universal Head Spindle	GEM 4445
*	2a	Universal Head Spindle - long	GEM 3906
	3	Bearing Locknut	GEM 3808
	4	End Cap for Spindle Housing	GEM 3827
	5	Inner Bearing Spacer	GEM 3801
	6	Outer Bearing Spacer	GEM 3800
	7	Grease Retainer	GEM 3802
	8	Universal Head Spindle Housing	GEM 3904
	9	Grease Retainer - rear bearings	GEM 3792
	10	Ball Bearing Locknut M45 x 1.5mm left hand	GEM 3957
+	11	Hexagon Socket Countersunk Head Screw M4 dia. x 10mm long	KO5 25 309
	12	Grease Retainer - Rear Bearings	GEM 3792
	13	Fenner Vee Belt Spindle Pulley 95 PCD 2 grooves 031Z 0262	KO5 78 235
	14	Fenner Taper Lock Bush No. 1610 38mm bore	K30 77 186
Ø	15	Single Row Radial Ball Bearing 85mm O/D x 45mm bore x 19mm wide RHP 6209 TB E.5	KO6 20 106
	16	Angular Contact Bearing 90mm O/D x 55mm bore x 18mm wide RHP 7011 EP7	KO6 01 161
*	17	Fenner Vee Belts SPZ 940	K30 77 156

* Not Shown

Ø "KLUBER" Grease Packed

\+ Not supplied since 16.9.76



UNIVERSAL HEAD SPINDLE ASSEMBLY
40mm. dia. spindle

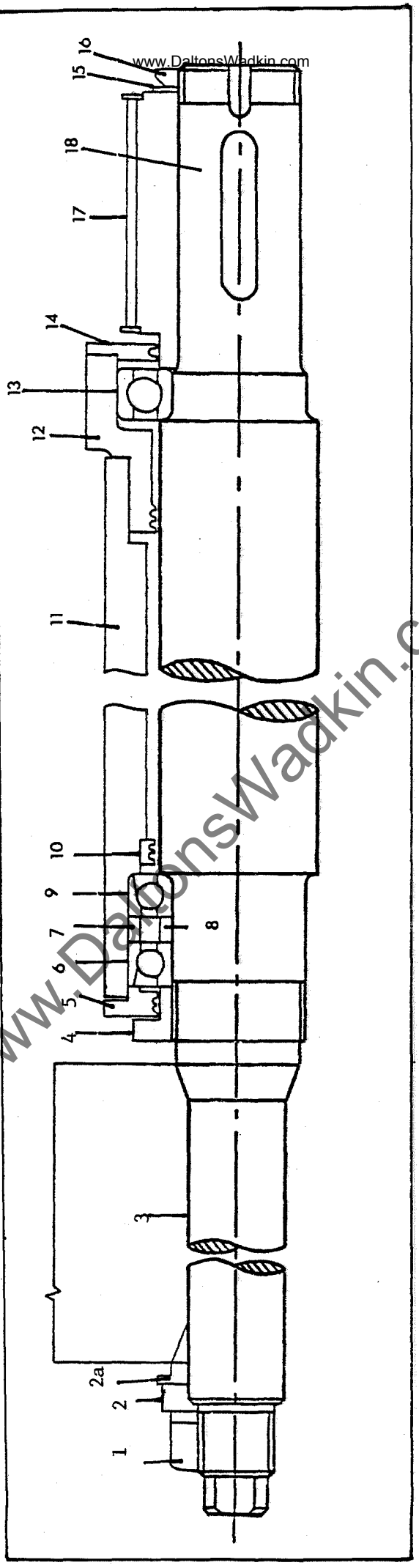
BOTTOM HORIZONTAL CUTTERBLOCK SPINDLE - 40MM DIA. SQUARE SHOULDERED WITH HEAVY DUTY ANGULAR CONTACT BEARINGS

	REF.NO.	DESCRIPTION	PART NO.
	1	Spindle Locknut	GEM 708
	2	Spacer	GEM 3954
	2a	Cutterblock Locking Cones	FAC 13
	3	Bottom Horizontal Cutterblock Spindle	GEM 4165
	4	Bearing Locknut	GEM 3809
	5	Bearing Locknut and Grease Retainer	GEM 3827
Ø	6	Paired Angular Contact Bearing 90mm O/D x 55mm bore x 18mm wide RHP 7011 EP7	KO6 20 132
	7	Outer Bearing Spacer	GEM 3800
	8	Inner Bearing Spacer	GEM 3801
Ø	9	Paired Angular Contact Bearing 90mm O/D x 55mm bore x 21mm wide RHP 7011 EP7	KO6 20 132
	10	Grease Retainer	GEM 3802
	11	Spindle Housing	GEM 4837
≠	12		
Ø	13	Single Row Radial Ball Bearing 100mm O/D x 55mm bore x 21mm wide RHP 6211 EP7	KO6 20 110
	14	Grease Retainer for Pulley	GEM 3811
	15	Tab Lockwasher for M50 Nut	KO5 27 260
	16	Chamfered Notch Nut M50 x 1.5 pitch	KO5 27 211
	17	Spindle Pulley	GEM 4546
	18	Key 14mm x 9mm x 70mm long	KO5 23 187
*	19	Fenner Vee Belts SPZ 1340	K30 77 126
*	20	Square Head Dowel 8mm dia. x 40mm long 1 for GEM 4837	KO5 29 210

Ø "KLUBER" Grease Packed

≠ Not Supplied

* Not Shown



BOTTOM HORIZONTAL SPINDLE

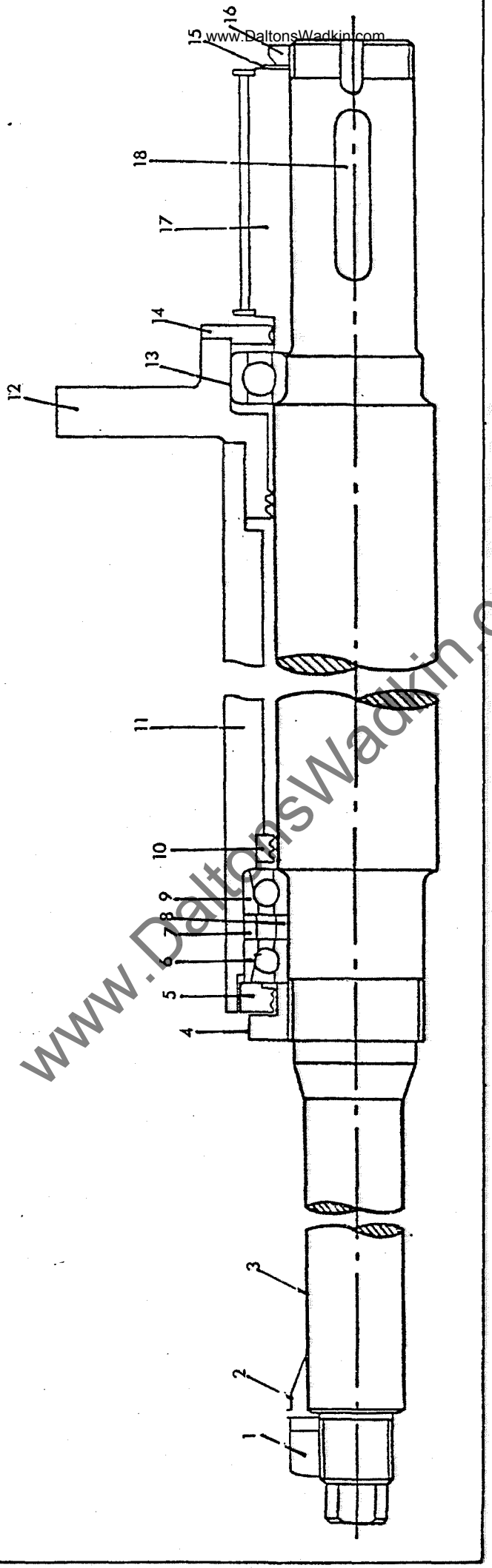
TOP HORIZONTAL CUTTERBLOCK SPINDLE - 40MM DIA. SQUARE SHOULDERED WITH HEAVY DUTY ANGULAR CONTACT BEARINGS

	REF.NO.	DESCRIPTION	PART NO.
	1	Spindle Locknut	GEM 707
	2	Cutterblock Locking Cones	FAC 13
	3	Top Horizontal Cutterblock Spindle	GEM 4164
	4	Bearing Locknut	GEM 3808
	5	Bearing Locknut and Grease Retainer	GEM 3810
Ø	6	'Paired' Angular Contact Bearing 90mm O/D x 55mm bore x 18mm wide RHP 7011 EP7	KO6 20 132
	7	Outer Bearing Spacer	GEM 3800
	8	Inner Bearing Spacer	GEM 3801
Ø	9	'Paired' Angular Contact Bearing 90mm O/D x 55mm bore x 18mm wide RHP 7011 EP7	KO6 20 132
	10	Grease Retainer	GEM 3802
	11	Barrel for Top Head Spindle	GEM 4835
≠	12		
Ø	13	Single Row Radial Ball Bearing 100mm O/D x 55mm bore x 21mm wide RHP 6211 TB EP7	KO6 20 110
	14	Grease Retainer	GEM 3802
	15	Tab Lockwasher for M50 Nut	KO5 27 260
	16	Chamfered Notch Nut M50 x 1.5 pitch	KO5 27 211
	17	Spindle Pulley	GEM 4546
	18	Key 14mm x 9mm x 70mm long	KO5 23 187
*	19	Fenner Vee Belts SPZ 1340	K30 77 126
*	20	Square Head Dowel 8mm dia. x 40mm long 1 for GEM 4835	KO5 29 210

Ø "KLUBER" Grease Packed

≠ Not Supplied

* Not Shown



TOP HORIZONTAL SPINDLE

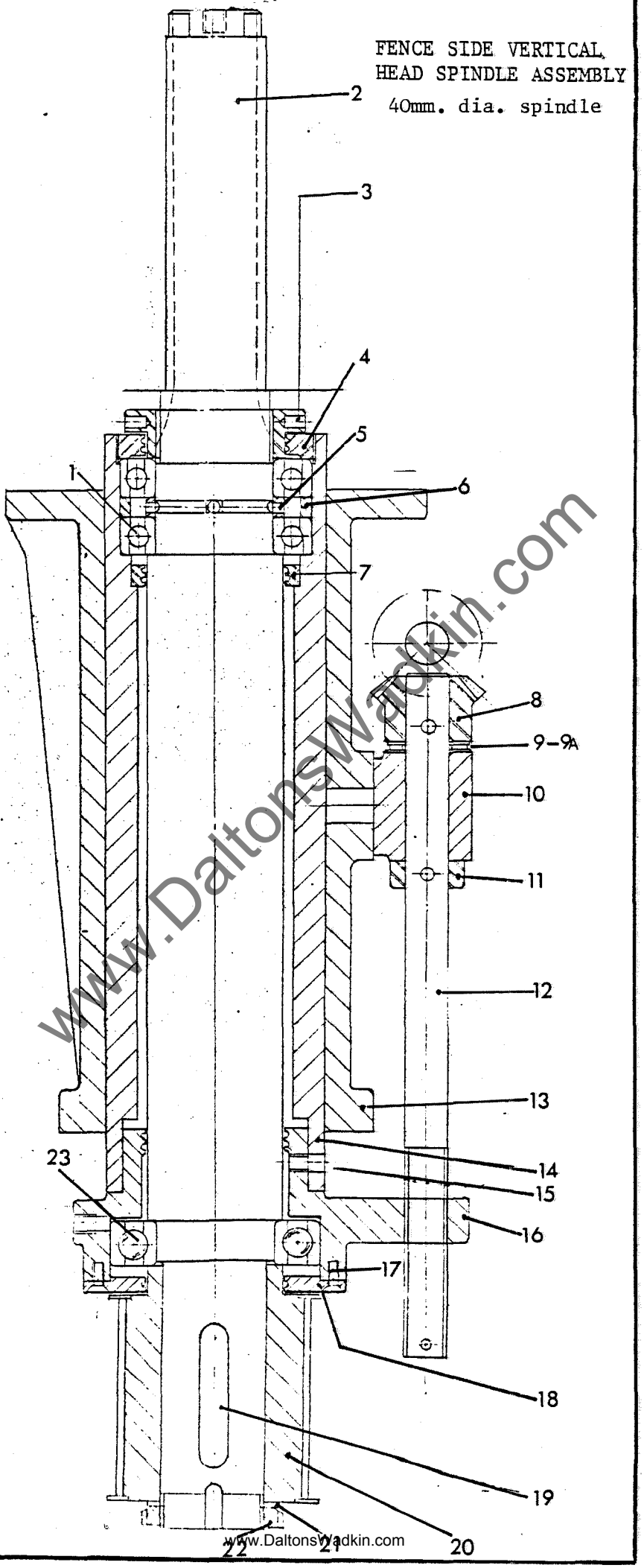
FENCE SIDE CUTTERBLOCK SPINDLE - 40MM DIA. SQUARE SHOULDERED WITH HEAVY DUTY ANGULAR CONTACT BEARINGS

	REF.NO.	DESCRIPTION	PART NO.
Ø	1	Angular Contact Bearing 90mm O/D x 55mm bore x 18mm wide RHP 7011 TDU EP7	KO6 20 132
	2	Fence Side Vertical Spindle	GEM 4662
	3	Bearing Locknut	GEM 3808
	4	Bearing Locknut and Grease Retainer	GEM 3810
	5	Inner Bearing Spacer	GEM 3801
	6	Outer Bearing Spacer	GEM 3800
	7	Grease Retainer	GEM 3802
	8	Mitre Gear	GEM 2519
	9	INA Thrust Bearing AXK 2035	KO6 10 212
	9a	INA Thrust Washer 2035	KO6 10 252
	10	Mitre Gear Bracket for Side Head Vertical Adjustment	GEM 3122
	11	Collar 20mm dia.	KO5 28 215
	12	Vertical Screw for Fence Side Head Vertical Adjustment	GEM 3122
	13	Carriage for Side Head	GEM 3818
	14	Side Head Barrel	GEM 3817
	15	Locating Screw M8	GEM 3889
	16	Bearing Housing and Adjuster	GEM 3816
	17	Hexagon Socket Countersunk Head Screw M5 x 12mm long	KO5 25 317
	18	Grease Retainer for Pulley	GEM 3811
	19	Key 14mm x 9mm x 70mm long	KO5 23 187
	20	Fenner Vee Belt Pulley 95 PCD 2 grooves 031Z 0132	KO5 78 235
	21	Tab Lockwasher for M50 Nut	KO5 27 260
	22	Chamfered Notch Nut M50 x 1.5 pitch	KO5 27 211
Ø	23	Single Row Radial Ball Bearing 100mm O/D x 55mm bore x 21mm wide RHP 6211 TB EP7	KO6 20 110
*	24	Fenner Taper Lock Bush No. 1610 38mm bore	K30 77 186
*	25	Fenner Vee Belts SPZ 2000	K30 78 231

Ø "KLUBER" Grease Packed

* not shown

FENCE SIDE VERTICAL
HEAD SPINDLE ASSEMBLY
40mm. dia. spindle



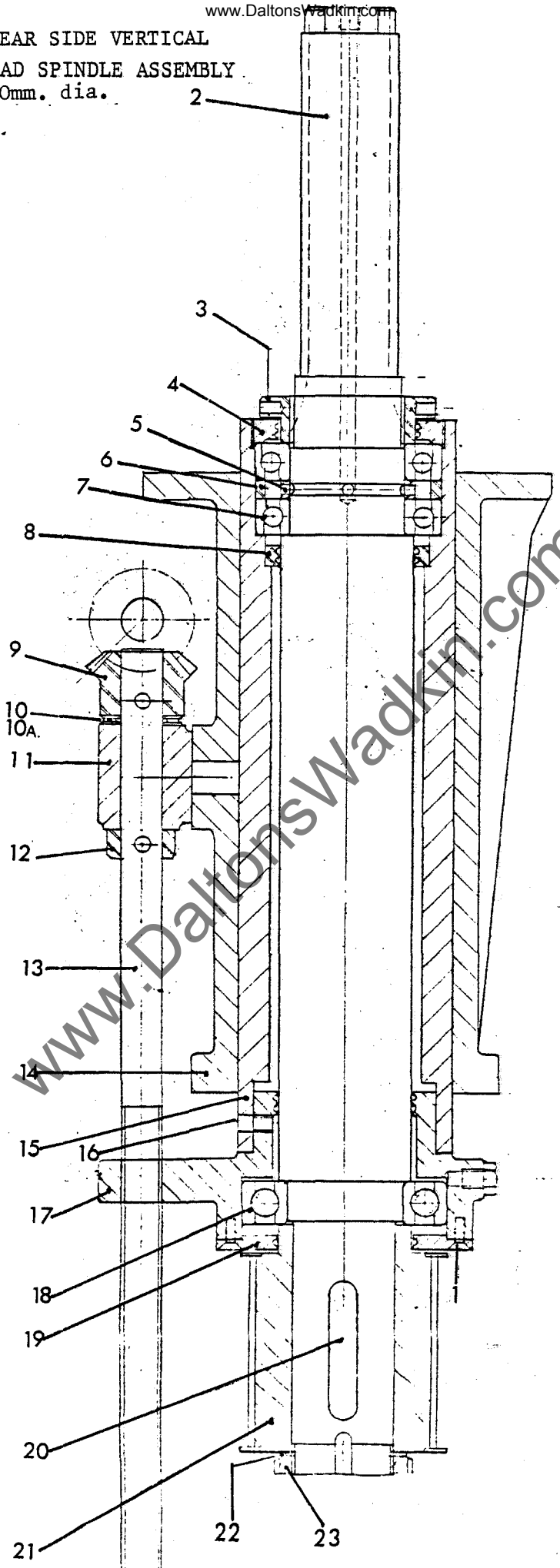
NEAR SIDE CUTTERBLOCK SPINDLE - 40MM DIA. SQUARE SHOULDERED WITH HEAVY DUTY ANGULAR CONTACT BEARINGS

	REF.NO.	DESCRIPTION	PART NO.
	1	Hexagon Socket Countersunk Head Screws M5 x 12mm long	KO5 25 317
	2	Near Side Vertical Spindle	GEM 4663
	3	Bearing Locknut	GEM 3809
	4	Bearing Locknut and Grease Retainer	GEM 3810
	5	Inner Bearing Spacer	GEM 3801
	6	Outer Bearing Spacer	GEM 3800
Ø	7	Angular Contact Bearing 90mm O/D x 55mm bore x 18mm wide RHP 7011 TDU EP7	KO6 20 132
	8	Grease Retainer	GEM 3802
	9	Mitre Gear	GEM 2519
	10	INA Thrust Bearing AXK 2035	KO6 10 212
	10a	INA Thrust Washer 2035	KO6 10 252
	11	Mitre Gear Bracket for Side Head Vertical Adjustment	GEM 3121
	12	Collar 20mm dia.	KO5 28 211
	13	Vertical Screw for Near Side Head Vertical Adjustment	GEM 3123
	14	Carriage for Side Head	GEM 3818
	15	Side Head Barrel	Gem 3817
	16	Locating Screw M8	GEM 3889
	17	Bearing Housing and Adjuster	GEM 3816
Ø	18	Single Row Radial Ball Bearing 100mm O/D x 55mm bore x 21mm wide RHP 6211 TB EP7	KO6 01 309
	19	Grease Retainer for Pulley	GEM 3811
	20	Key 14mm x 9mm x 70mm long	KO5 23 187
	21	Fenner Vee Belt Pulley 95 PCD 2 Grooves 031Z 0132	KO5 78 235
	22	Tab Lockwasher for M50 Nut	KO5 27 260
	23	Chamfered Notch Nut M50 x 1.5 pitch	KO5 27 211
*	24	Fenner Taper Lock Bush No. 1610 38mm bore	K30 77 186
*	25	Fenner Vee Belts SPZ 2000	K30 78 231

Ø "KLUBER" Grease Packed

* not shown

NEAR SIDE VERTICAL
HEAD SPINDLE ASSEMBLY
40mm. dia.



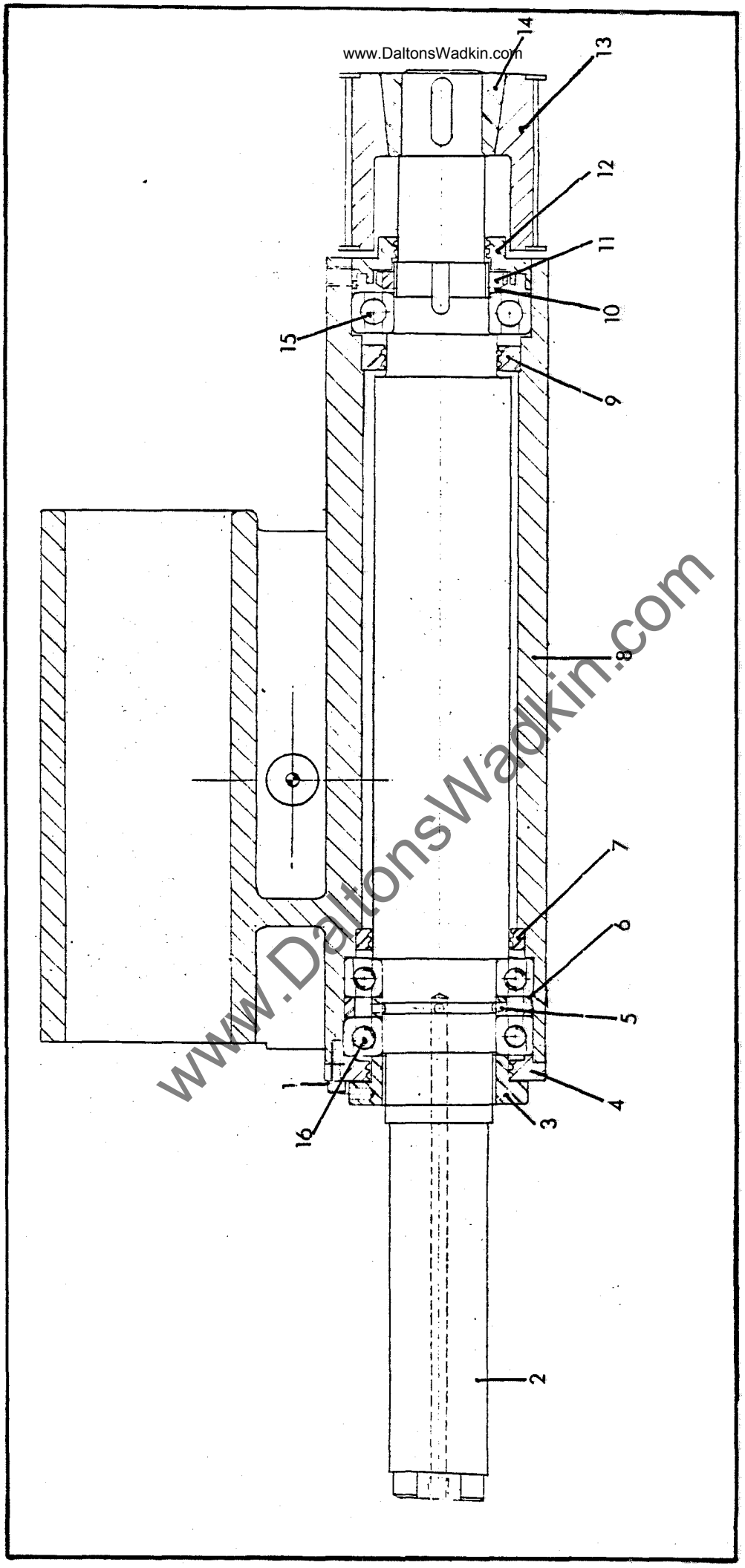
UNIVERSAL HEAD SPINDLE - 40MM DIA. SQUARE SHOULDERED WITH HEAVY DUTY ANGULAR CONTACT BEARINGS

	REF.NO.	DESCRIPTION	PART NO.
	1	Hexagon Socket Countersunk Head Screws M5 x 12mm long	KO5 25 317
	2	Universal Head Spindle	GEM 4664
*	2a	Universal Head Spindle - long	GEM 3906
	3	Bearing Locknut	GEM 3808
	4	End Cap for Spindle Housing	GEM 3827
	5	Inner Bearing Spacer	GEM 3801
	6	Outer Bearing Spacer	GEM 3800
	7	Grease Retainer	GEM 3802
	8	Universal Head Spindle Housing	GEM 3904
	9	Grease Retainer - rear bearings	GEM 3792
	10	Ball Bearing Locknut M45 x 1.5mm left hand	GEM 3957
+	11	Hexagon Socket Countersunk Head Screw M4 dia. x 10mm long	KO5 25 309
	12	Grease Retainer - Rear Bearings	GEM 3792
	13	Fenner Vee Belt Spindle Pulley 95 PCD 2 grooves 031Z 0262	KO5 78 235
	14	Fenner Taper Lock Bush No. 1610 38mm bore	K30 77 186
Ø	15	Single Row Radial Ball Bearing 85mm O/D x 45mm bore x 19mm wide RHP 6209 TB E.5	KO6 20 106
	16	Angular Contact Bearing 90mm O/D x 55mm bore x 18mm wide RHP 7011 7DU EP7	KO6 01 161
*	17	Fenner Vee Belts SPZ 940	K30 77 156

* Not Shown

Ø "KLUBER" Grease Packed

\+ Not supplied since 16.9.76



UNIVERSAL HEAD SPINDLE ASSEMBLY
40mm. dia. spindle

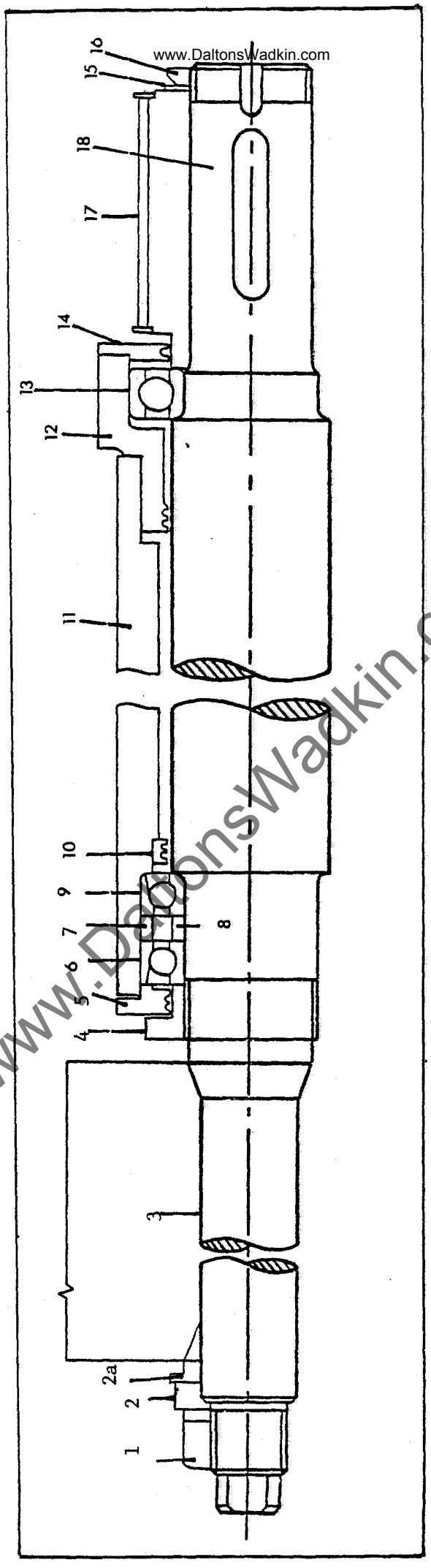
BOTTOM HORIZONTAL CUTTERBLOCK SPINDLE 40MM. DIA. SQUARE SHOULDERED WITH OUTBOARD BEARINGS AND HEAVY DUTY ANGULAR CONTACT BEARINGS

	REF.NO:	DESCRIPTION	PART NO:
	1	Spindle locknut	GEM 708
	2	Spacer	GEM 3954
	2a	Cutterblock locking cones	FAC 13
	3	Bottom horizontal cutterblock spindle	GEM 4665
	4	Bearing locknut	GEM 3809
	5	Bearing locknut and grease retainer	GEM 3827
Ø	6	Paired angular contact bearing 90mm. O.D. x 55mm. bore x 21mm. wide RHP 7011 EP7	KO6 20 132
	7	Outer bearing spacer	GEM 3800
	8	Inner bearing spacer	GEM 3801
Ø	9	Paired angular contact bearing 90mm. O.D. x 55mm. bore x 21mm. wide RHP 7011 EP7	KO6 20 132
	10	Grease retainer	GEM 3802
	11	Spindle housing	GEM 4837
≠	12		
Ø	13	Single row radial ball bearing 100mm. O.D. x 55mm. bore x 21mm. wide RHP 6211 EP7	KO6 20 110
	14	Grease retainer for pulley	GEM 3811
	15	Tab lockwasher for M50.nut	KO5 27 260
	16	Chamfered notchnut M50. x 1.5 pitch	KO5 27 211
	17	Spindle pulley	GEM 4546
	18	Key 14mm. x 9mm. x 70mm. long	KO5 23 187
*	19	"FENNER" vee belts SPZ 1340	K30 77 126
*	20	Square head dowel 8mm. dia. x 40mm. long (1) FOR gem 4837	KO5 29 210

Ø "KLUBER" grease packed

≠ Not supplied

* Not shown



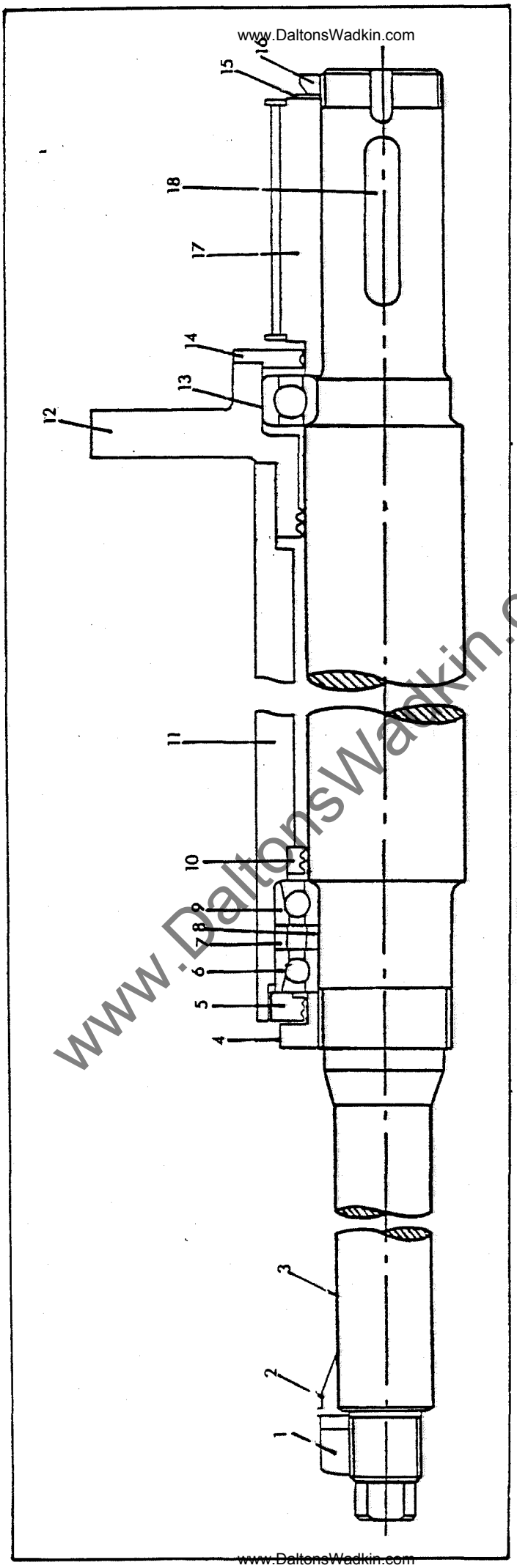
BOTTOM HORIZONTAL SPINDLE

TOP HORIZONTAL HEAD 40MM DIA. SQUARE SHOULDERED WITH HEAVY DUTY ANGULAR CONTACT BEARINGS AND OUTBOARD BEARINGS

	REF.NO.	DESCRIPTION	PART NO.
	1	Spindle Locknut	GEM 707
	2	Cutterblock Locking Cones	FAC 13
	3	Top Horizontal Cutterblock Spindle	GEM 4542
	4	Key for Cutterblock Spindle	GEM 4255
	5	Hexagon Socket Countersunk Head Screws M3 dia. x 12mm long 1 for GEM 4255	KO5 25 303
	6	Bearing Locknut	GEM 3808
	7	Bearing Locknut and Grease Retainer	GEM 3810
Ø	8	Angular Contact Bearing 90mm O/D x 55mm bore x 18mm wide RHP 7011 TDWX EP7	KO6 20 132
	9	Outer Bearing Spacer	GEM 3800
	10	Inner Bearing Spacer	GEM 3801
Ø	11	Angular Contact Ball Bearing RHP 6211 TB EP7	KO6 20 110
	12	Grease Retainer	GEM 3802
	13	Barrel and Bearing Housing for Top Head Spindle	GEM 4835
	14	Grease Retainer for Pulley	GEM 3811
	15	Hexagon Socket Countersunk Head Screw M5 dia. x 12mm long 4 for GEM 3811	KO5 25 317
	16	Tab Lockwasher for M50 Nut	KO5 27 260
	17	Chamfered Notch Nut M50 x 1.5 pitch	KO5 27 211
	18	Key 14mm x 9mm x 70mm long	KO5 23 187
*	19	Square Head Dowel 8mm dia. x 40mm long 1 for GEM 4835	KO5 29 210
*	20	Spindle Pulley	GEM 4546
*	21	Fenner Vee Belts SPZ 1420	K30 77 129

Ø "KLUBER" Grease Packed

* Not shown



TOP HORIZONTAL SPINDLE

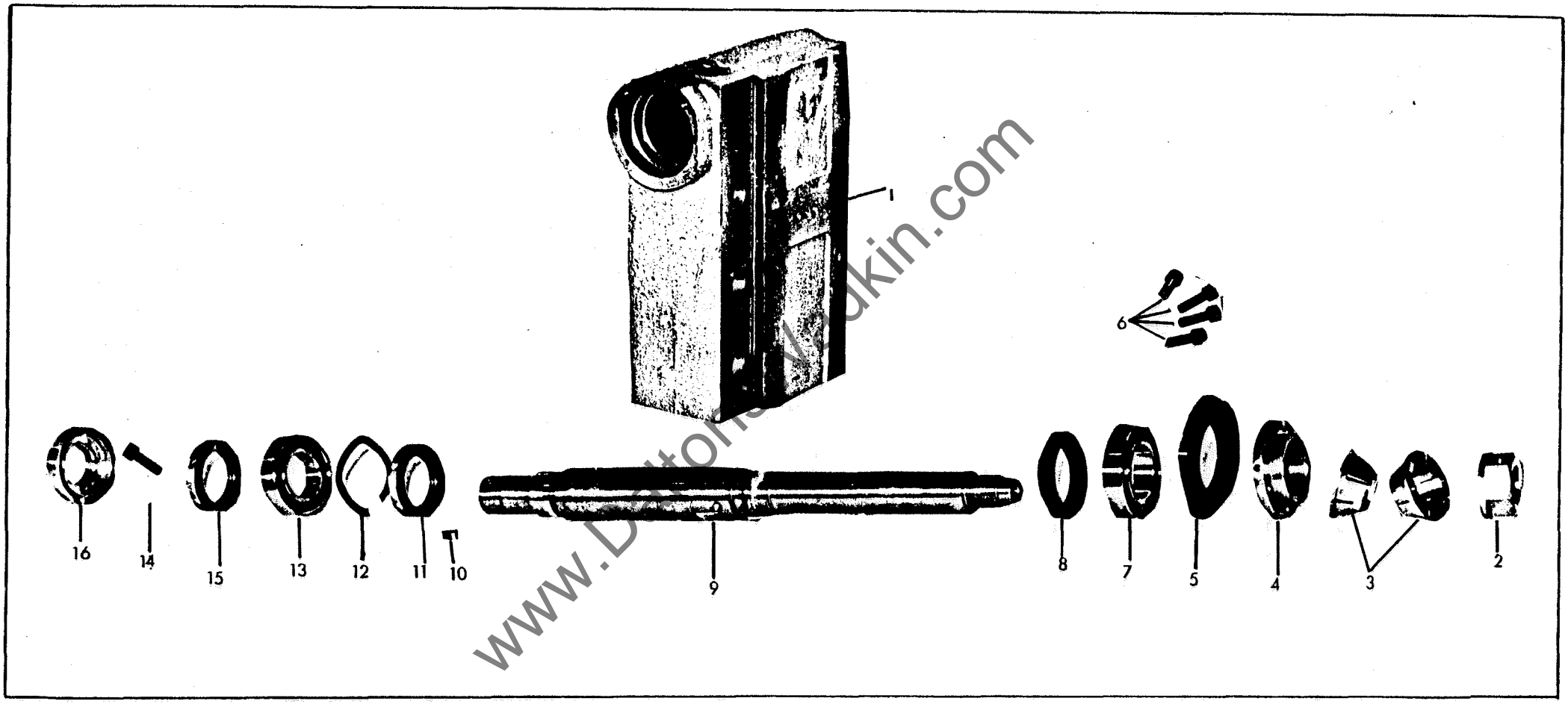
BOTTOM HORIZONTAL HEAD - 35MM DIA. SQUARE SHOULDERED SINGLE ROW RADIAL BEARINGS

	REF.NO.	DESCRIPTION	PART NO.
	1	Spindle Housing	GEM 4521
	2	Cutter Spindle Locknut	GEM 708
	3	Cutterblock Locking Cones	FD 2407
	4	Ball Bearing Locknut	GEM 3030
	5	End Cap	GEM 3044
	6	Socket Head Hexagon Screws M10 x 30mm long	KO5 25 210
Ø	7	Ball Bearing RHP 6209 TB EP7	KO6 20 106
	8	Labyrinth Sleeve for Front Bearing	GEM 3032
≠	9	Cutterblock Spindle	GEM 3970
	10	Key	KO5 23 113
	11	Grease Retainer	GEM 3792
	12	EMO Waved Washer EPL 60	K30 89 110
Ø	13	Ball Bearing RHP 6209 TB EP7	KO6 20 106
+	14	Hexagon Socket Countersunk Head Screw M4 x 10mm long	KO5 25 309
	15	Ball Bearing Locknut	GEM 3958
	16	Grease Retainer for Spindle Bearing	GEM 3791
*	17	Square Head Dowel 8mm dia. x 40mm long for GEM 4521	KO5 29 210
*	18	Hexagon Socket Screws - cup point - 2 for GEM 4521	KO5 26 112
*	19	Hexagon Socket Screw M5 x 20mm long 4 for GEM 3044	KO5 25 145

Ø "KLUBER" Grease Packed

\+ Not supplied since 16.9.76

* Not Shown



CUTTERBLOCK SPINDLE (35mm dia.) ASSEMBLY WITH
LUBRICATED BEARINGS EXCLUSIVE OF DRIVING PULLEY
BOTTOM HORIZONTAL HEAD

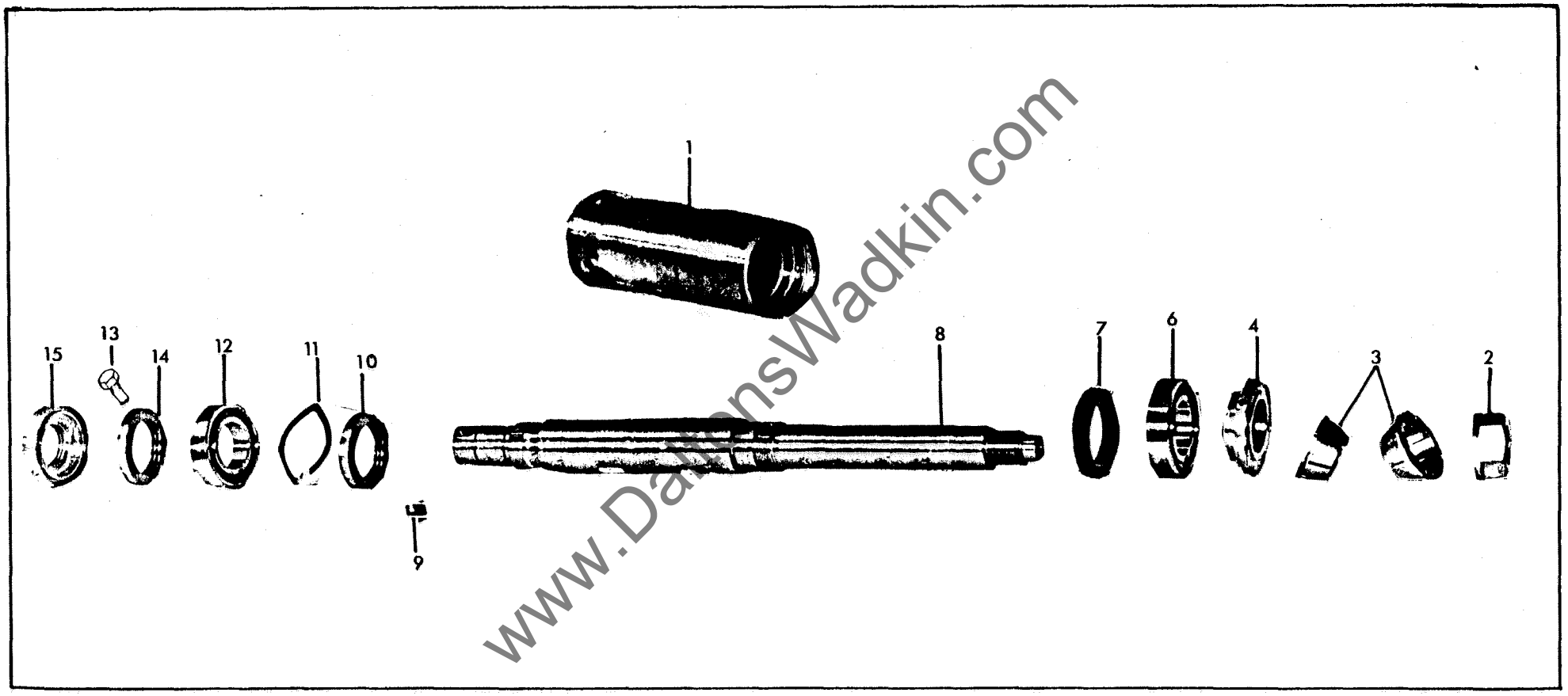
TOP HORIZONTAL HEAD - 35MM DIA. SQUARE SHOULDERED SINGLE ROW RADIAL BEARINGS

	REF.NO.	DESCRIPTION	PART NO.
	1	Spindle Barrel	GEM 4318
	2	Cutterblock Spindle Locknut	GEM 707
	3	Cutterblock Locking Cones	FD 2407
	4	Ball Bearing Locknut	GEM 3030
*	5	Ball Bearing Locknut	GEM 3029
Ø	6	Ball Bearing RHP 6209 TB EP7	KO6 20 106
	7	Labyrinth Sleeve for Front Bearing	GEM 3032
	8	Cutterblock Spindle	GEM 3972
	9	Key	KO5 23 113
	10	Grease Retainer	GEM 3791
	11	EMO Waved Washer EPL 60	K30 89 110
Ø	12	Ball Bearing RHP 6209 TB EP7	KO6 20 106
+	13	Hexagon Socket Countersunk Head Screw M4 x 10mm long	KO5 25 309
	14	Ball Bearing Locknut	GEM 3957
	15	Grease Retainer for Spindle Bearing	GEM 3792
*	16	Hexagon Socket Screws (cup point) M6 x 6mm long 2 for GEM 4318	KO5 26 112

Ø "KLUBER" Grease Packed

* Not Shown

+ Not supplied since 16.9.76



CUTTERBLOCK SPINDLE (35mm.dia.) ASSEMBLY WITH PERMANENTLY LUBRICATED BEARINGS - EXCLUSIVE OF DRIVING PULLEY

TOP HORIZONTAL HEAD

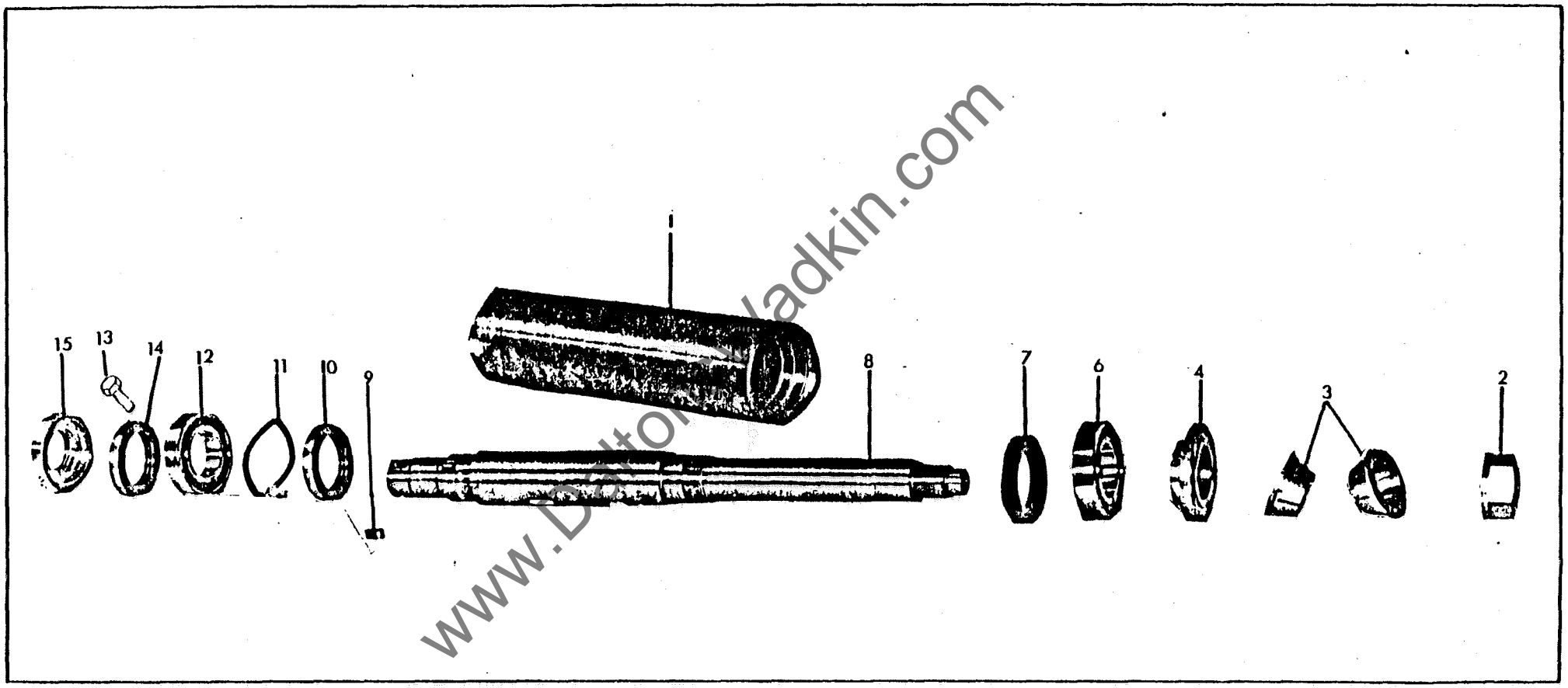
FENCE SIDE VERTICAL HEAD - 35MM DIA. SQUARE SHOULDERED WITH SINGLE ROW RADIAL BEARINGS

	REF.NO.	DESCRIPTION	PART NO.
	1	Spindle Barrel	GEM 4319
	2	Cutterblock Spindle Locknut	GEM 707
	3	Cutterblock Locking Cones	FD 2407
	4	Ball Bearing Locknut	GEM 3030
*	5	Ball Bearing Locknut	GEM 3029
Ø	6	Ball Bearing RHP 6209 TB EP7	KO6 20 106
	7	Labyrinth Sleeve for Front Bearing	GEM 3032
	8	Cutterblock Spindle	GEM 3975
	9	Key 10mm x 8mm x 32mm long	KO5 23 129
	10	Grease Retainer	GEM 3792
	11	EMO Waved Washer EPL 60	K30 89 110
Ø	12	Ball Bearing RHP 6209 TB EP7	KO6 20 106
+	13	Hexagon Socket Countersunk Head Screw M4 x 10mm long	KO5 25 309
	14	Ball Bearing Locknut	GEM 3957
	15	Grease REtainer for Spindle Lower Bearings	GEM 3791
*	16	Cup Point Hexagon Socket Screw M6 dia. x 6mm long M6 dia. x 6mm long 2 for GEM 4319	KO5 26 112
*	17	Fenner Vee Belt Spindle Pulley 95 PCD 2 Grooves O31Z 0133	KO5 78 235
*	18	Fenner Taper Lock Bush No. 1610 38mm bore	K30 77 186
*	19	Fenner Vee Belts SPZ 2000	K30 78 231

* Not Shown

Ø "KLUBER" Grease Packed

+ Not supplied since 16.9.76



CUTTERBLOCK SPINDLE (35mm dia.) ASSEMBLY WITH PERMANENTLY LUBRICATED BEARINGS - EXCLUSIVE OF DRIVING PULLEY - FENCE SIDE VERTICAL HEAD

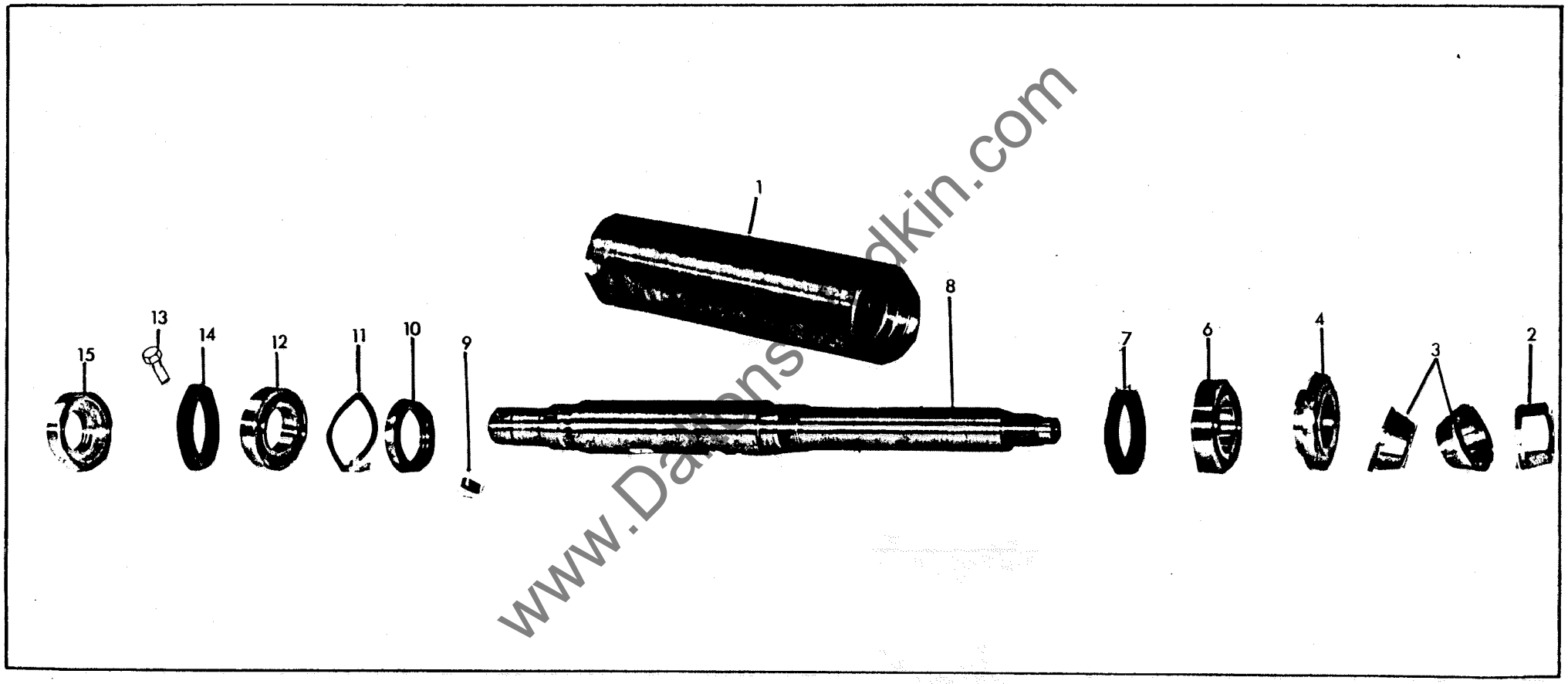
NEAR SIDE VERTICAL HEAD - 35MM DIA. SQUARE SHOULDERED WITH SINGLE ROW RADIAL BEARINGS

	REF.NO.	DESCIPTION	PART NO.
	1	Spindle Barrel	GEM 4319
	2	Cutterblock Spindle Locknut	GEM 708
	3	Cutterblock Locking Cones	FD 2407
	4	Ball Bearing Locknut	GEM 3030
*	5	Ball Bearing Locknut	GEM 3029
Ø	6	Ball Bearing RHP 6209 TB EP7	K06 20 106
	7	Labyrinth Sleeve for Front Bearing	GEM 3032
	8	Cutterblock Spindle	GEM 3976
	9	Key	K05 23 129
	10	Grease Retainer	GEM 3792
	11	EMO Waved Washer EPL 60	K30 89 110
Ø	12	Ball Bearing RHP 6209 TB EP7	K06 20 106
+	13	Hexagon Socket Countersunk Head Screw M4 x 10mm long	K05 25 309
	14	Ball Bearing Locknut M45 x 1.5 LH	GEM 3957
	15	Grease Retainer for Spindle Lower Bearing	GEM 3791
*	16	Cup Point Hexagon Socket Screws M6 dia. x 6mm long 2 for GEM 4319	K05 26 112
*	17	Fenner Vee Belt Spindle Pulley 95 PCD 2 Grooves 031Z 0132	K30 78 235
*	18	Fenner Taper Lock Bush No. 1610 38mm bore	K30 7/ 186
*	19	Fenner Vee Belts SPZ 2540	K30 77 157

* Not Shown

Ø "KLUBER" Grease Packed

+ Not supplied since 16.9.76



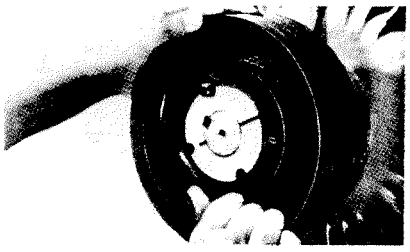
CUTTERBLOCK SPINDLE (35mm dia.) ASSEMBLY WITH PERMANENTLY LUBRICATED BEARINGS - EXCLUSIVE OF DRIVING PULLEY - NEAR SIDE VERTICAL HEAD

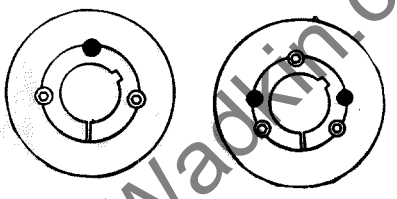
REPLACEMENT OF PARTS ASSOCIATED WITH THE CUTTERBLOCK SPINDLES.

The following procedure is applicable to all spindles.

1. Remove the cutterblock, chipbreaker (when fitted) and guard.
2. Slacken off the tension of the cutterblock spindle driving belt. This is effected by loosening the motor fixing bolts on the attendant motor bracket or the motor tensioner bolts whichever apply. The belt can then be removed.
3. Remove the taper lock bush from the cutterblock spindle pulley.

TO REMOVE



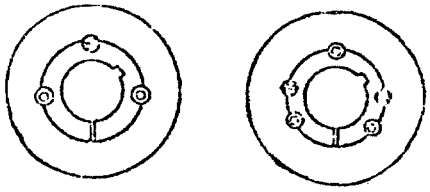


1. Slacken all screws by several turns, remove one or two according to number of jacking off holes shown thus ● in diagram. Insert screws in jacking off holes after oiling thread and point of grub screws or thread and under head of cap screws.
2. Tighten screws alternately until bush is loosened in hub and assembly is free on shaft.
3. Remove assembly from shaft.

RE-FITTING THE PULLEYS AND TAPER LOCK BUSHES

1. After ensuring that the mating tapered surfaces are completely clean and free from oil or dirt, insert bush in hub so that holes line up.

2. Oil thread and point of grub screws or thread under head of cap screws. Place screws loosely in holes threaded in hub, shown thus ◎ in diagram



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

4. Using a hexagon wrench, tighten screws gradually and alternately until all are pulled up very tightly. Use a piece of pipe on wrench to increase leverage.

5. After the bush has been tightened on to the shaft fit the parallel key which is side fitting with top clearance.

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

7. Fill empty holes with grease to exclude dirt.

BOTTOM HORIZONTAL HEAD

To Remove the cutterblock spindle from the spindle housing GEM 3790

1. Unscrew the Ball Bearing Locknut GEM 3030 at the cutterblock end of the spindle housing.

2. Gently tap the spindle assembly from the 'Front' and withdraw from the rear of the machine.

3. To remove the front bearing it will be necessary to take off the end cap GEM 3044 by removing the four socket head screws.

4. From the rear of the machine 'persuade' by knocking the bearing through the spindle housing GEM 4521.

The dis-assembled state of the spindle is shown in detail on pages 122, 123

Also refer to pages 93 and 94

VERTICAL SIDE HEADS

Removal of the spindle barrel GEM 4319 from the carriage GEM 3134

1. From the front of the machine release the four equi-spaced locknuts of the pip screws about the periphery of vertical adjustment nut GEM 3120 (3621- In early machines a single nut).

2. Remove the two locknuts from the lower end of the spindle unit. Raise and Lower Screw and then lower the cutter head to its extreme position to the extent that the screw clears the vertical adjusting nut.

3. Enlist the services of a second person to release the lock.

4. Gently hoist the complete barrel assembly from the carriage.

To remove the cutterblock spindle from the barrel GEM 4319

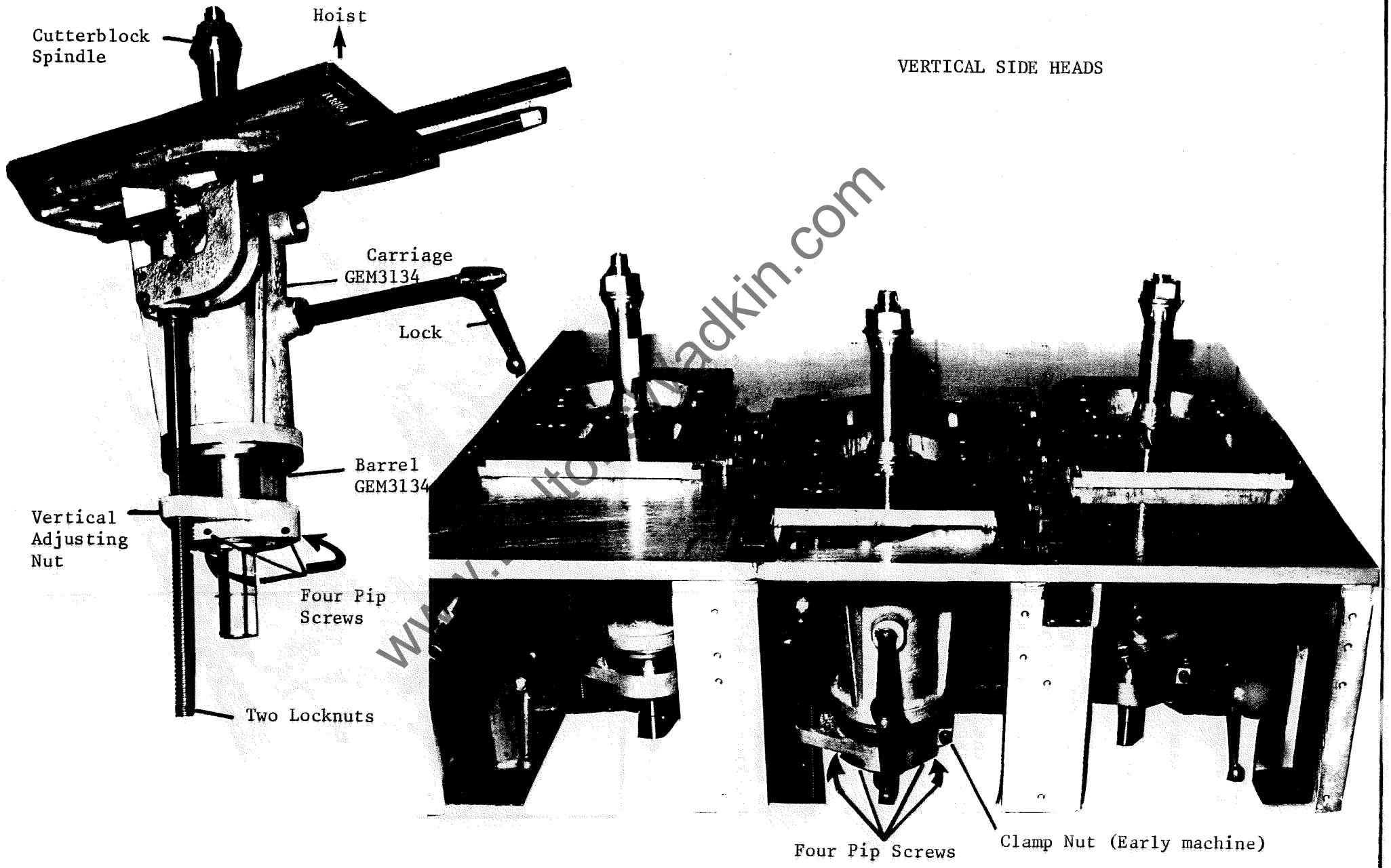
1. Unscrew the ball bearing locknuts GEM 3030 and 3029 at the cutterblock end of the spindle barrel.

2. Gently tap the spindle assembly from the 'Front' to the rear of the barrel

3. To remove the front bearing from the rear of the barrel 'persuade' by knocking the bearing through the barrel.

The dis-assembled state of the spindle is shown in detail on pages 126, 127 and 128, 129.
Also refer to pages 93 and 94

VERTICAL SIDE HEADS



REMOVAL OF THE BARREL ASSEMBLY FROM THE SLIDE GEM 3262 FOR THE TOP HORIZONTAL OR SECOND TOP HORIZONTAL HEAD

The Removal Stages are as follows:-

1. 'Wind out' the head to the extremity of its lateral movement.

2. From the rear of the machine release the barrel locking pad (1) in the slide GEM 3262 (2). To achieve this it will be necessary to remove the socket head cap screw (3) which secures the locking pad to the barrel. The space confinement will make it necessary to employ a shortened version Allen Key.

3. From the front of the machine withdraw the barrel assembly from the slide GEM 3262.

To remove the cutterblock spindle from the barrel GEM 4318

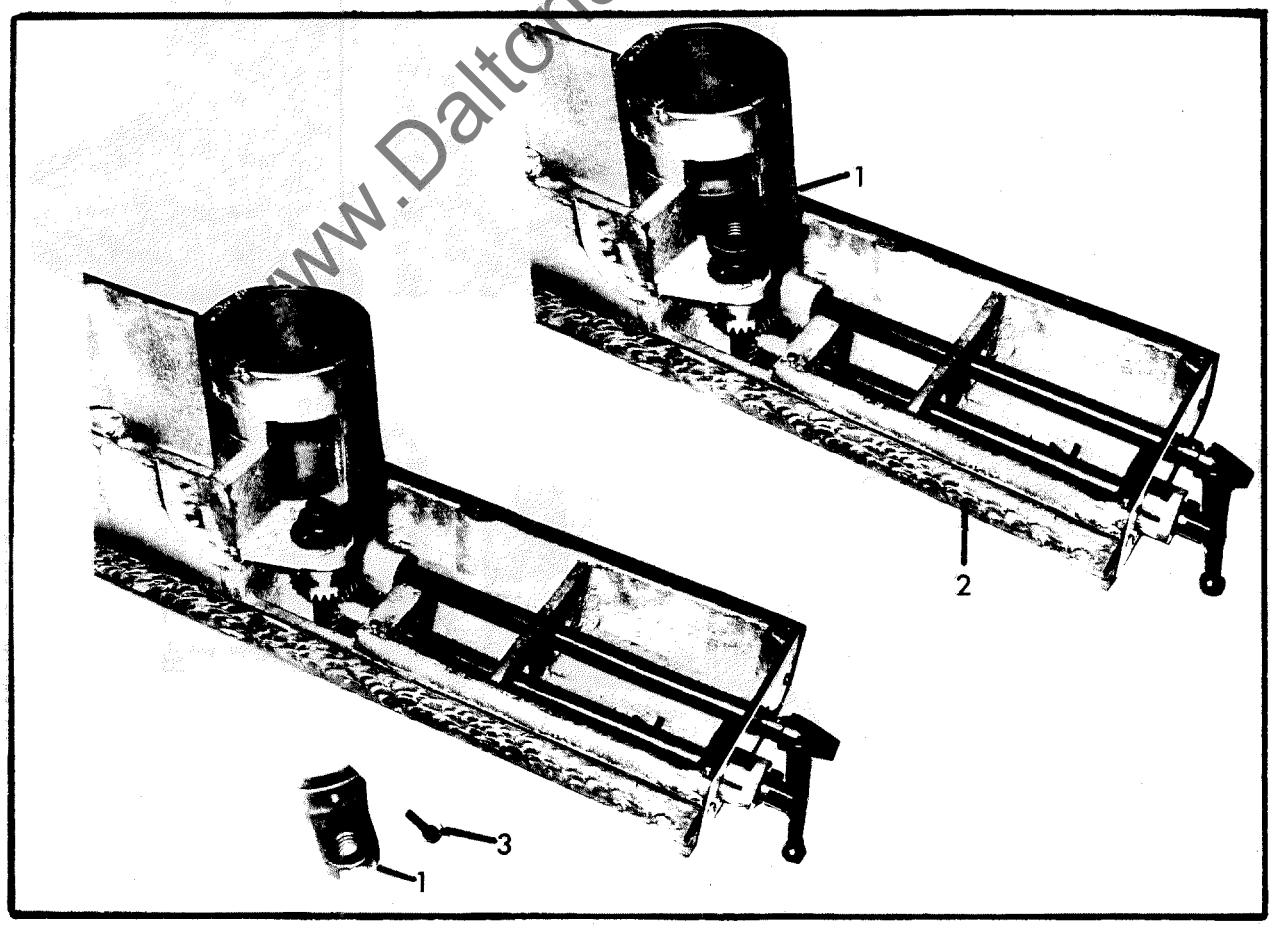
1. Unscrew the ball bearing locknuts GEM 3030 and 3029 at the cutterblock end of the spindle barrel.

2. Gently tap the spindle assembly from the front to the rear of the barrel.

3. To remove the front bearing from the rear of the barrel 'persuade' by knocking the bearing through the barrel.

The dis-assembled state of the spindle is shown in detail on pages 132 and 133

Also refer to pages 93 and 94



UNIVERSAL HEAD

To remove the cutterblock spindle from the spindle Housing GEM 3787

1. Unscrew the bearing locknut GEM 3030 at the cutterblock end of the spindle housing.

2. Gently tap the spindle assembly from the front and withdraw from the rear of the machine.

3. To remove the front bearing it will be necessary to take off End Cap GEM 3044 by removing the four socket head screws.

4. From the rear of the machine 'persuade' by knocking the bearing through the spindle housing GEM 3787

The dis-assembled state of the spindle is shown in detail on Pages 130 and 131

Also refer to Pages 93 and 94

TIMING BELTS AND PULLEYS FOR MACHINES HAVING AN ELECTRICAL FREQUENCY OF 50 HERTZ

				MOTOR		CUTTER SPINDLE	
HEAD	SPEED	MOTOR SIZE AND OUTPUT	FENNER BELT REF.	FENNER PULLEY REFERENCE	FENNER TAPER LOCK BUSH	FENNER PULLEY REFERENCE	FENNER TAPER LOCK BUSH
First Bottom Horizontal	6000	D112M 4.0 KW (5.5 h.p.)	540 H 100	48H 100	Bush 2012 Bore 28mm	23H 200	Bush 1610 Bore 38mm
	6000	D132S 7.5 KW (10 h.p.)	540 H 100	48H 100	Bush 2012 Bore 38mm	23H 200	Bush 1610 Bore 38mm
	7500	D112M 4.0 KW (5.5 h.p.)	570 H 100	GEM 2361	Bush 2012 Bore 28mm	23H 200	Bush 1610 Bore 38mm
	7500	D132S 7.5 KW (10 h.p.)	570 H 100	GEM 2361	Bush 2012 Bore 38mm	23H 200	Bush 1610 Bore 38mm
First Fence Side Vertical	6000	D112M 4.0 KW (5.5 h.p.)	750 H 100	48H 100	Bush 2012 Bore 28mm	23H 300	Bush 1615 Bore 38mm
	6000	D132S 7.5 KW (10 h.p.)	750 H 100	48H 100	Bush 2012 Bore 38mm	23H 300	Bush 1615 Bore 38mm
	6000	D160M 11.0 KW (15 h.p.)	800 H 100	48H 100	Bush 2012 Bore 42mm	23H 300	Bush 1615 Bore 38mm
	7500	D112M 4.0 KW (5.5 h.p.)	750 H 100	GEM 2361	Bush 2012 Bore 28mm	23H 300	Bush 1615 Bore 38mm
	7500	D132S 7.5 KW (10.h.p.)	750 H 100	GEM 2361	Bush 2012 Bore 38mm	23H 300	Bush 1615 Bore 38mm
	7500	D160M 11.0 KW (15 h.p.)	800 H 100	GEM 2361	Bush 2012 Bore 42mm	23H 300	Bush 1615 Bore 38mm
Near Side Vertical	6000	D112M 4.0 KW (5.5 h.p.)	1000 H 100	48H 100	Bush 2012 Bore 28mm	23H 300	Bush 1615 Bore 38mm
	6000	D132S 7.5 KW (10 h.p.)	1000 H 100	48H 100	Bush 2012 Bore 38mm	23H 300	Bush 1615 Bore 38mm
	6000	D160M 11.0 KW (15 h.p.)	1000 H 100	48H 100	Bush 2012 Bore 42mm	23H 300	Bush 1615 Bore 38mm
	7500	D112M 4.0 KW (5.5 h.p.)	1000 H 100	GEM 2361	Bush 2012 Bore 28mm	23H 300	Bush 1615 Bore 38mm
	7500	D 132S 7.5 KW (10 h.p.)	1000 H 100	GEM 2361	Bush 2012 Bore 38mm	23H 300	Bush 1615 Bore 38mm
	7500	D 160M 11.0 KW (15 h.p.)	1000 H 100	GEM 2361	Bush 2012 Bore 42mm	23H 300	Bush 1615 Bore 38mm
Second Fence Side Vertical	6000	D112M 4.0 KW (5.5 h.p.)	700 H 100	48 H 100	Bush 2012 Bore 28mm	23H 300	Bush 1615 Bore 38mm
	6000	D132S 7.5 KW (10.0 h.p.)	700 H 100	48 H 100	Bush 2012 Bore 38mm	23H 300	Bush 1615 Bore 38mm
	6000	D160M 11.0 KW (15 h.p.)	700 H 100	48 H 100	Bush 2012 Bore 42mm	23H 300	Bush 1615 Bore 38mm
	7500	D112M 4.0 KW (5.5 h.p.)	700 H 100	GEM 2361	Bush 2012 Bore 28mm	23H 300	Bush 1615 Bore 38mm
	7500	D132S 7.5 KW (10 h.p.)	700 H 100	GEM 2361	Bush 2012 Bore 38mm	23 H 300	Bush 1615 Bore 38mm
	7500	D160M 11.0 KW (15 h.p.)	750 H 100	GEM 2361	Bush 2012 Bore 42mm	23H 300	Bush 1615 Bore 38mm

TIMING BELTS AND PULLEYS FOR MACHINES HAVING AN ELECTRICAL CAPACITY OF 50 HERTZ

HEAD	SPEED	MOTOR SIZE AND OUTPUT	MOTOR: FENNER BELT REFERENCE	MOTOR: FENNER PULLEY REFERENCE	MOTOR: FENNER TAPER LOCK BUSH	CUTTER SPINDLE: FENNER PULLEY	CUTTER SPINDLE: FENNER TAPER LOCK
First or Second Top Horizontal	6000	D112M 4.0 KW (5.5 h.p.)	660 H 100	48 H 100	Bush 2012 Bore 28mm	23 H 200	Bush 1610 Bore 38mm
	6000	D132S 7.5 KW (10 h.p.)	660 H 100	48 H 100	Bush 2012 Bore 38mm	23 H 200	Bush 1610 Bore 38mm
	6000	D160M 11.0 KW (15 h.p.)	600 H 100	48 H 100	Bush 2012 Bore 42mm	23 H 200	Bush 1610 Bore 38mm
	7500	D112M 4.0 KW (5.5 h.p.)	660 H 100	GEM 2361	Bush 2012 Bore 28mm	23 H 200	Bush 1610 Bore 38mm
	7500	D132S 7.5 KW (10 h.p.)	700 H 100	GEM 2361	Bush 2012 Bore 38mm	23 H 200	Bush 1610 Bore 38mm
	7500	D160M 11.0 KW (15 h.p.)					
Second Bottom Horizontal	6000	D 112M 4.0 KW (5.5 h.p.)	540 H 100	48 H 100	Bush 2012 Bore 28mm	23 H 200	Bush 1610 Bore 38mm
	6000	D 132S 7.5 KW (10 h.p.)	540 H 100	48 H 100	Bush 2012 Bore 38mm	23 H 200	Bush 1610 Bore 38mm
	6000	D.160M 11.0 KW (15 h.p.					
	7500	D 112M 4.0 KW (5.5 h.p.)	570 H 100	GEM 2361	Bush 2012 Bore 28mm	23 H 200	Bush 1610 Bore 38mm
	7500	D 132S 7.5 KW (10 h.p.)	570 H 100	GEM 2361	Bush 2012 Bore 38mm	23 H 200	Bush 1610 Bore 38mm
	7500	D160M 11.0 KW (15 h.p.)					
Universal Top & Bottom Horizontal Vertical Cant	6000	D 112M 4.0 KW (5.5 h.p.)	360 H 100	48 H 100	Bush 2012 Bore 28mm	23 H 300	Bush 1615 Bore 38mm
	6000	D132S 7.5 KW (10 h.p.)	360 H 100	48 H 100	Bush 2012 Bore 38mm	23 H 300	Bush 1615 Bore 38mm
	7500	D112M 4.0 KW (5.5 h.p.)	390 H 100	GEM 2361	Bush 2012 Bore 28mm	23 H 300	Bush 1615 Bore 38mm
	7500	D132S 7.5 KW (10 h.p.)	390 H 100	GEM 2361	Bush 2012 Bore 38mm	23 H 300	Bush 1615 Bore 38mm

Vee Belts and Pulleys for machines having an Electrical Frequency of 50 hertz
GEM 170

			MOTOR		SPINDLE		
Head	Speed R.P.M.	Motor Size and Output	Fenner Vee Belt Ref.	Vee Pulley Ref.	Fenner Taper Lock bush	Vee Pulley Belt Ref.	Fenner Taper Lock bush
First Bottom Horizontal	6000	D112M 4.0 KW (5.5 h.p.)	SPZ 1400 K30 78 229	031Z 0262 K30 78 238	Bush 2012 Bore 28mm K30 77 114	031Z 0132 K30 78 235	Bush 1610 Bore 38mm K30 77 186
	6000	D132S 7.5 KW (10.0 h.p.)	SPZ 1400 K30 78 229	031Z 0264 K30 78 239	Bush 2517 Bore 38mm K30 77 194	031Z 0134 K30 78 236	Bush 1610 Bore 38mm K30 77 186
	6000	D160M 11.0 KW (15.0 h.p.)	SPZ 1400 K30 78 229	031Z 0264 K30 78 239	Bush 2517 Bore 42mm K30 77 101	031Z 0134 K30 78 236	Bush 1610 Bore 38mm K30 77 186
	7500	D112M 4.0 KW (5.5 h.p.)	SPZ 1470 K30 77 129	031Z 0302 K30 78 241	Bush 2012 Bore 28mm K30 77 114	031Z 0132 K30 78 23	Bush 1610 Bore 38mm K30 77 186
	7500	D132S 7.5 KW (10.0 h.p.)	SPZ 1470 K30 77 129	031Z 0304 K30 78 225	Bush 2517 Bore 38mm K30 77 194	031Z 0134 K30 78 236	Bush 1610 Bore 38mm K30 77 186
Top Horizontal	6000	D112M 4.0 KW (5.5 h.p.)	SPZ 1470 K30 77 129	031Z 0262 K30 78 238	Bush 2012 Bore 28mm K30 77 114	031Z 0132 K30 78 235	Bush 1610 Bore 38mm K30 77 186
	6000	D132S 7.5 KW (10.0 h.p.)	SPZ 1470 K30 77 129	031Z 0264 K30 78 239	Bush 2517 Bore 38mm K30 77 194	031Z 0134 K30 78 236	Bush 1610 Bore 38mm K30 77 186
	6000	D160M 11.0 KW (15.0 h.p.)	SPZ 1520 K30 77 119	031Z 0264 K30 78 239	Bush 2517 Bore 42mm K30 77 101	031Z 0134 K30 78 236	Bush 1610 Bore 38mm K30 77 186
	7500	D112M 4.0 KW (5.5 h.p.)	SPZ 1560 K30 77 297	031Z 0302 K30 78 241	Bush 2012 Bore 28mm K30 77 114	031Z 0132 K30 78 235	Bush 1610 Bore 38mm K30 77 186
	7500	D132S 7.5 KW (10.0 h.p.)	SPZ 1560 K30 77 297	031Z 0304 K30 78 225	Bush 2517 Bore 38mm K30 77 194	031Z 0134 K30 78 236	Bush 1610 Bore 38mm K30 77 186
	7500	D160M 11.0 KW (15.0 h.p.)	SPZ 1600 K30 78 230	031Z 0304 K30 78 225	Bush 2517 Bore 42mm K30 77 101	031Z 0134 K30 78 236	Bush 1610 Bore 38mm K30 77 186

Vee Belts and Pulleys for machines having an Electrical Frequency of 50 hertz.
GEM 170

			MOTOR			Spindle	
Head	Speed R.P.M.	Motor Size and Output	Fenner Vee Belt Ref.	Vee Pulley Ref.	Fenner Taper Lock bush	Vee Pulley Ref.	Fenner Taper Lock bush
First Fence	6000	D112M 4.0 KW (5.5 h.p.)	SPZ 2000 K30 78 231	031Z 0262 K30 78 238	Bush 2012 Bore 28mm K30 77 114	031Z 0132 K30 78 235	Bush 1610 Bore 38mm K30 77 186
	6000	D132S 7.5 KW (10.0 h.p.)	SPZ 2000 K30 78 231	031Z 0264 K30 78 239	Bush 2517 Bore 38mm K30 77 194	031Z 0134 K30 78 236	Bush 1610 Bush 38mm K30 77 186
	6000	D160M 11.0 KW (15.0 h.p.)	SPZ 2000 K30 78 231	031Z 0264 K30 78 239	Bush 2517 Bore 42mm K30 77 101	031Z 0134 K30 78 236	Bush 1610 Bore 38mm K30 77 186
	7500	D112M 4.0 KW (5.5 h.p.)	SPZ 2030 K30 77 110	031Z 0302 K30 78 241	Bush 2012 Bore 28mm K30 77 114	031Z 0132 K30 78 235	Bush 1610 Bore 38mm K30 77 186
	7500	D132S 7.5 KW (10.0 h.p.)	SPZ 2030 K30 77 110	031Z 0304 K30 78 225	Bush 2517 Bore 38mm K30 77 194	031Z 0134 K30 78 236	Bush 1610 Bore 38mm K30 77 186
	7500	D160M 11.0 KW (15.0 h.p.)	SPZ 2120 K30 78 232	031Z 0304 K30 78 225	Bush 2517 Bore 42mm K30 77 101	031Z 0134 K30 78 236	Bush 1610 Bore 38mm K30 77 186
Near Side Vertical	6000	D112M 4.0 KW (5.5 h.p.)	SPZ 2540 K30 77 157	K30 71 238 031Z 0262	Bush 2012 Bore 28mm K30 77 114	031Z 0132 K30 78 235	Bush 1610 Bore 38mm K30 77 186
	6000	D132S 7.5 KW (10.0 h.p.)	SPZ 2540 K30 77 157	031Z 0264 K30 78 239	Bush 2517 Bore 38mm K30 77 194	031Z 0134 K30 78 236	Bush 1610 Bore 38mm K30 77 186
	6000	D160M 11.0 KW (15.h.p.)	SPZ 2650 K30 78 233	031Z 0264 K30 78 239	Bush 2517 Bore 42mm K30 77 101	031Z 0134 K30 78 236	Bush 1610 Bore 38mm K30 77 186
	7500	D112M 4.0 KW (5.5 h.p.)	SPZ 2690 K3078 234	031Z 0302 K30 78 241	Bush 2012 Bore 28mm K30 77 114	031Z 0132 K30 78 235	Bush 1610 Bore 38mm K30 77 186
	7500	D132S 7.5 KW (10.0 h.p.)	SPZ 2690 K30 78 234	031Z 0304 K30 78 225	Bush 2517 Bore 38mm K30 77 194	031Z 0134 K30 78 236	Bush 1610 Bore 38mm K30 77 186

Vee Belts and Pulleys for machine having an Electrical Frequency of 50 hertz

GEM 170

			MOTOR		SPINDLE		
Head	Speed R.P.M.	Motor Size and Output	Fenner Vee Belt Ref.	Vee Pulley Ref.	Fenner Taper Lock bush	Vee Pulley Ref.	Fenner Taper Lock bush
Near Side Vertical	7500	D160M 11.0 KW (15. h.p.)	SPZ 2690 K30 78 234	031Z 0304 K30 78 225	Bush 2517 Bore 42mm K30 77 101	031Z 0134 K30 78 236	Bush 1610 Bore 38mm K30 77 186
Second Fence Side Vertical	6000	D112M 4.0 KW (5.5 h.p.)	SPZ 1800 K30 77 118	031Z 0262 K30 78 238	Bush 2012 Bore 28mm K30 77 114	031Z 0132 K30 78 235	Bush 1610 Bore 38mm K30 77 186
	6000	D132S 715 KW (10.0 hp)	SPZ 1800 K30 77 118	031Z 0264 K30 78 239	Bush 2517 Bore 38mm K30 77 194	031Z 0134 K30 78 236	Bush 1610 Bore 38mm K30 77 186
	7500	D112M 3.0 KW (5.5 h.p.)	SPZ 1900 K30 78 205	031Z 0302 K30 78 241	Bush 2012 Bore 28mm K30 77 114	031Z 0132 K30 78 235	Bush 1610 Bore 38mm K30 77 186
	7500	D132S 7.5 KW (10 h.p.)	SPZ 1900 K30 78 205	031Z 0304 K30 78 225	Bush 2517 Bore 38mm K30 77 194	031Z 0134 K30 78 236	Bush 1610 Bore 38mm K30 77 186
	7500	D160M 11.0 KW (15.0 h.p.)	SPZ 2000 K30 78 231	031Z 0304 K30 78 225	Bush 2517 Bore 42mm K30 77 101	031Z 0134 K30 78 236	Bush 1610 Bore 38mm K30 77 186
Second Bottom Horizontal	6000	D112M 4.0 KW (5.5 h.p.)	SPZ 1400 K30 78 229	031Z 0262 K30 78 238	Bush 2012 Bore 28mm K30 77 114	031Z 0132 K30 78 235	Bush 1610 Bore 38mm K30 77 186
	6000	D132S 7.5 KW (10.0 h.p.)	SPZ 1400 K30 78 229	031Z 0264 K30 78 239	Bush 2517 Bore 38mm K30 77 194	031Z 0134 K30 78 236	Bush 1610 Bore 38mm K30 77 186
	6000	D160M 11.0 KW (15.0 h.p.)	SPZ 1400 K30 78 229	031Z 0264 K30 78 239	Bush 2517 Bore 42mm K30 77 101	031Z 0134 K30 78 236	Bush 1610 Bore 38mm K30 77 186
	7500	D112M 4.0 KW (5.5 hp)	SPZ 1470 K30 77 129	031Z 0302 K30 78 241	Bush 2012 Bore 28mm K30 77 114	031Z 0132 K30 78 23	Bush 1610 Bore 38mm K30 77 186

Vee Belts and Pulleys for Machines having an Electrical Frequency of 50 hertz.
GEM 170

			MOTOR			SPINDLE	
	Head	Speed R.P.M.	Motor Size and Output	Fenner Vee Belt Ref.	Vee Pulley Ref.	Fenner Taper Lock Bush	Vee Pulley Ref.	Fenner Taper Lock Bush
June77	Second Bottom Horizontal	7500	D132S 7.5 KW (10.0 h.p.)	SPZ 1470 K30 77 129	031Z 0304 K30 78 225	Bush 2517 Bore 38mm K30 77 194	031Z 0134 K30 78 236	Bush 1610 Bore 38mm K30 77 186
		7500	D160M 11.0 KW (15 h.p.)	SPZ 1470 K30 77 129	031Z 0304 K30 78 225	Bush 2517 Bore 42mm K30 77 101	031Z 0134 K30 78 236	Bush 1610 Bore 38mm K30 77 186
	Universal Top and Bottom Horizontal Vertical Cant	6000	D112M 4.0 KW (5.0 h.p.)	SPZ 940 K30 77 156	031Z 0262 K30 78 238	Bush 2012 Bore 28mm K30 77 114	031Z 0132 K30 78 235	Bush 1610 Bore 38mm K30 77 186
		6000	D132S 7.5 KW (10.0 h.p.)	SPZ 940 K30 77 156	031Z 0263 K30 78 244	Bush 2012 Bore 38mm K30 77 113	031Z 0133 K30 78 243	Bush 1610 Bore 38mm K30 77 186
		7500	D112M 4.0 KW (5.0 h.p.)	SPZ 1010 K30 77 115	031Z 0302 K30 78 241	Bush 2012 Bore 28mm K30 77 114	031Z 0132 K30 78 235	Bush 1610 Bore 38mm K30 77 186
		7500	D132S 7.5 KW (10. h.p.)	SPZ 1010 K30 77 115	031Z 0303 K30 78 245	Bush 2012 Bore 38mm K30 77 113	031Z 0133 K30 78 243	Bush 1610 Bore 38mm K30 77 186
	Throating Head	5000	*D100L 3.0 KW (4.0 h.p.) *Adaptor plate WU 516 Socket Head Screws 8mm x 20mm K05 25 187 - 4	187L 100 (Timing)	WU 524		Fenner 22L100* *Bore to WU 522	

PULLEYS AND TIMING BELTS FOR MACHINES OPERATING AT AN ELECTRICAL FREQUENCY OF 60 HERTZ

				MOTOR		SPINDLE	
HEAD	SPEED R.P.M.	MOTOR SIZE AND OUTPUT	FENNER BELT REFERENCE	PULLEY REF.	FENNER TAPER LOCK BUSH	PULLEY REF.	FENNER TAPER LOCK BUSH
First Bottom Horizontal	6000	D112M 4.0 KW (5.5 h.p.)	510 H 100	40 H 100	Bush 1610 Bore 28mm	23 H 200	Bush 1610 Bore 38mm
	6000	D132S 7.5 KW (10.0 h.p.)	510 H 100	40 H 100	Bush 1610 Bore 38mm	23 H 200	Bush 1610 Bore 38mm
	7200	D112N 4.0 KW (5.5 h.p.)	540 H 100	48 H 100	Bush 2012 Bore 38mm	23 H 200	Bush 1610 Bore 38mm
	7200	D132S 7.5 KW (10.0 h.p.)	540 H 100	48 H 100	Bush 2012 Bore 38mm	23 H 200	Bush 1610 Bore 38mm
First Fence Side Vertical	6000	D112M 4.0 KW (5.5 h.p.)	700 H 100	40 H 100	Bush 1610 Bore 28mm	23 H 300	Bush 1615 Bore 38mm
	6000	D132S 7.5 KW (10.0 h.p.)	700 H 100	40 H 100	Bush 1610 Bore 38mm	23 H 300	Bush 1615 Bore 38mm
	6000	D160M 11.0KW (15.0 h.p.)	750 H 100	40 H 100	Bush 1610 Bore 42mm	23 H 300	Bush 1615 Bore 38mm
	7200	D112M 4.0 KW (5.5 h.p.)	750 H 100	48 H 100	Bush 2012 Bore 28mm	23 H 300	Bush 1615 Bore 38mm
	7200	D132S 7.5 KW (10.0 h.p.)	750 H 100	48 H 100	Bush 2012 Bore 38mm	23 H 300	Bush 1615 Bore 38mm
	7200	D160M 11.0 KW (15.0 h.p.)	800 H 100	48 H 100	Bush 2012 Bore 42mm	23 H 300	Bush 1615 Bore 38mm
Near Side Vertical	6000	D112M 4.0 KW (5.5 h.p.)	900 H 100	40 H 100	Bush 1610 Bore 28mm	23 H 300	Bush 1615 Bore 38mm
	6000	D132S 7.5 KW (10.0 h.p.)	900 H 100	40 H 100	Bush 1610 Bore 38mm	23 H 300	Bush 1615 Bore 38mm
	6000	D 160M 11.0 KW (15.0 h.p.)	900 H 100	40 H 100	Bush 1610 Bore 42mm	23 H 300	Bush 1615 Bore 38mm
	7200	D112M 4.0 KW (5.5.h.p.)	900 H 100	48 H 100	Bush 2012 Bore 28mm	23 H 300	Bush 1615 Bore 38mm
	7200	D132S 7.5 KW (10.0 h.p.)	1000 H 100	48 H 100	Bush 2012 Bore 38mm	23 H 300	Bush 1615 Bore 38mm
	7200	D160M 11.0 KW (15.0 h.p.)	1000 H 100	48 H 100	Bush 2012 Bore 42mm	23 H 300	Bush 1615 Bore 38mm
Second Fence	6000	D112M 4.0 KW (5.5 h.p.)	660 H 100	40 H 100	Bush 1610 Bore 28mm	23 H 300	Bush 1615 Bore 38mm
	6000	D132S 7.5 KW (10.0 h.p.)	660 H 100	40 H 100	Bush 1610 Bore 38mm	23 H 300	Bush 1615 Bore 38mm
	6000	D160M 11.0 KW (15.0 h.p.)	700 H 100	40 H 100	Bush 1610 Bore 42mm	23 H 300	Bush 1615 Bore 38mm
	7200	D112M 4.0 KW (5.5 h.p.)	700 H 100	48 H 100	Bush 2012 Bore 28mm	23 H 300	Bush 1615 Bore 38mm
	7200	D132S 7.5 KW (10.0 h.p.)	700 H 100	48 H 100	Bush 2012 Bore 38mm	23 H 300	Bush 1615 Bore 38mm
	7200	D160M 11.0 KW (15.0 h.p.)	700 H 100	48 H 100	Bush 2012 Bore 42mm	23 H 300	Bush 1615 Bore 38mm

PULLEYS AND TIMING BELTS FOR MACHINES OPERATING AT AN ELECTRICAL FREQUENCY OF 60 HERTZ

HEAD	SPEED R.P.M.	MOTOR SIZE AND OUTPUT	FENNER BELT REFERENCE	MOTOR PULLEY REF.	MOTOR FENNER TAPER LOCK BUSH	SPINDLE PULLEY REF	SPINDLE FENNER TAPER LOCK BUSH
First or Second Top Horizontal	6000	D112M 4.0 KW (5.5 h.p.)	630 H 100	40 H 100	Bush 1610 Bore 28mm	23 H 200	Bush 1610 Bore 38mm
	6000	D132S 7.5 KW (10.0 h.p.)	660 H 100	40 H 100	Bush 1610 Bore 38mm	23 H 200	Bush 1610 Bore 38mm
	6000	D160M 11.0 KW (15.0 h.p.)	570 H 100	40 H 100	Bush 2012 Bore 42mm	23 H 200	Bush 1610 Bore 38mm
	7200	D112M 4.0 KW (5.5 h.p.)	660 H 100	48 H 100	Bush 2012 Bore 28mm	23 H 200	Bush 1610 Bore 38mm
	7200	D132S 7.5 KW (10.0 h.p.)	660 H 100	48 H 100	Bush 2012 Bore 38mm	23 H 200	Bush 1610 Bore 38mm
	7200	D160M 11.0 KW (15.0 h.p.)	600 H 100	48 H 100	Bush 2012 Bore 42mm	23 H 200	Bush 1610 Bore 38mm
Through Top/ Bottom Horizontal	6000	D112M 4.0 KW (5.5 h.p.)	630 H 100	40 H 100	Bush 1610 Bore 28mm	23 H 200	Bush 1610 Bore 38mm
	6000	D132S 7.5 KW (10.0 h.p.)	660 H 100	40 H 100	Bush 1610 Bore 38mm	23 H 200	Bush 1610 Bore 38mm
	7200	D112M 4.0 KW (5.5 h.p.)	660 H 100	48 H 100	Bush 2012 Bore 28mm	23 H 200	Bush 1610 Bore 38mm
	7200	D132S 7.5 KW (10.0 h.p.)	660 H 100	48 H 100	Bush 2012 Bore 38mm	23 H 200	Bush 1610 Bore 38mm
Second Bottom Horizontal	6000	D112M 4.0 KW (5.5 h.p.)	510 H 100	40 H 100	Bush 1610 Bore 28mm	23 H 200	Bush 1610 Bore 38mm
	6000	D 132S 7.5 KW (10.0 h.p.)	510 H 100	40 H 100	Bush 1610 Bore 38mm	23 H 200	Bush 1610 Bore 38mm
	6000	D 160M 11.0KW (15.0 h.p.)					
	7200	D112M 4.0 KW (5.5 h.p.)	540 H 100	48 H 100	Bush 2012 Bore 28mm	23 H 200	Bush 1610 Bore 38mm
	7200	D132S 7.5 KW (10.0 h.p.)	540 H 100	48 H 100	Bush 2012 Bore 38mm	23 H 200	Bush 1610 Bore 38mm
	7200	D160M 11.0 KW (15.0 h.p.)					
Universal Top & Bottom Horizontal Vertical Cant	6000	D112M 4.0 KW (5.5 h.p.)	330 H 100	40 H 100	Bush 1610 Bore 28mm	23 H 300	Bush 1615 Bore 38mm
	6000	D132S 7.5 kW (10 h.p.)	330 H 100	40 H 100	Bush 1610 Bore 38mm	23 H 300	Bush 1615 Bore 38mm
	7200	D112M 4.0 KW (5.5 h.p.)	360 H 100	48 H 100	Bush 2012 Bore 28mm	23 H 300	Bush 1615 Bore 38mm
	7200	D132S 7.5 KW (10 h.p.)	360 H 100	48 H 100	Bush 2012 Bore 38mm	23 H 300	Bush 1615 Bore 38mm

Vee Belts and Pulleys for machines having an Electrical Capacity of 60 hertz
GEM 170

Head	Speed R.P.M.	Motor Size and Output	MOTOR Fenner Vee Belt Ref.	MOTOR Vee Pulley Ref.	MOTOR Fenner Taper Lock bush	SPINDLE Vee Pulley Ref.	SPINDLE Fenner Taper Lock bush
First Bottom Horizontal	6000	D112M 4.0 KW (5.5 h.p.)	SPZ 1320 K30 78 228	031Z 0222 K30 78 237	Bush 2012 Bore 28mm K30 77 114	031Z 0132 K30 78 235	Bush 1610 Bore 38mm K30 77 186
	6000	D132S 7 5 KW (10.0 hp)	SPZ 1320 K30 78 228	031Z 0224 K30 78 209	Bush 2517 Bore 38mm K30 77 194	031Z 0134 K30 78 236	Bush 1610 Bore 38mm K30 77 186
	7200	D112M 4.0 KW (5.5 h.p.)	SPZ 1470 K30 77 129	031Z 0302 K30 78 241	Bush 2012 Bore 28mm K30 77 114	031Z 0132 K30 78 23	Bush 1610 Bore 38mm K30 77 186
	7200	D160M 7.5 KW (10.0 h.p.)	SPZ 1470 K30 77 129	031Z 0304 K30 78 225	Bush 2517 Bore 38mm K30 77 194	031Z 0134 K30 78 236	Bush 1610 Bore 38mm K30 77 186
First Fence Side Vertical	6000	D112M 4.0 KW (5.5 h.p.)	SPZ 1900 K30 78 205	031Z 0222 K30 78 237	Bush 2012 Bore 28mm K30 77 114	031Z 0132 K30 78 235	Bush 1610 Bore 38mm K30 77 186
	6000	D132S 7.5 KW (10 h.p.)	SPZ 1900 K30 78 205	031Z 0224 K30 78 209	Bush 2517 Bore 38mm K30 77 194	031Z 0134 K30 78 236	Bush 1610 Bore 38mm K30 77 186
	6000	D160M 11.0 KW (15.0 h.p.)	SPZ 1900 K30 78 205	031Z 0224 K30 78 209	Bush 2517 Bore 42mm K30 70 101	031Z 0134 K30 78 236	Bush 1610 Bore 38mm K30 77 186
	7200	D112M 4.0 KW (5.5 h.p.)	SPZ 2000 K30 78 231	031Z 0262 K30 78 238	Bush 2012 Bore 28mm K30 77 114	031Z 0132 K30 78 235	Bush 1610 Bore 38mm K30 77 186
	7200	D132S 7.5 KW (10.0 h.p.)	SPZ 2000 K30 78 231	031Z 0264 K30 78 239	Bush 2517 Bore 38mm K30 77 194	031Z 0134 K30 78 236	Bush 1610 Bush 38mm K30 77 186
	7200	D160M 11.0 KW (15.0 h.p.)	SPZ 2000 K30 78 231	031Z 0264 K30 78 239	Bush 2517 Bore 42mm K30 77 101	031Z 0134 K30 78 236	Bush 1610 Bore 38mm K30 77 186
Near Side Vertical	6000	D112M 4.0 KW (5.5 h.p.)	SPZ 2540 K30 77 157	031Z 0224 K30 78 209	Bush 2012 Bore 28mm K30 77 114	031Z 0132 K30 78 235	Bush 1610 Bore 38mm K30 77 186

Vee Belts and Pulleys for machines having an Electrical Capacity of 60 hertz.
GEM 170

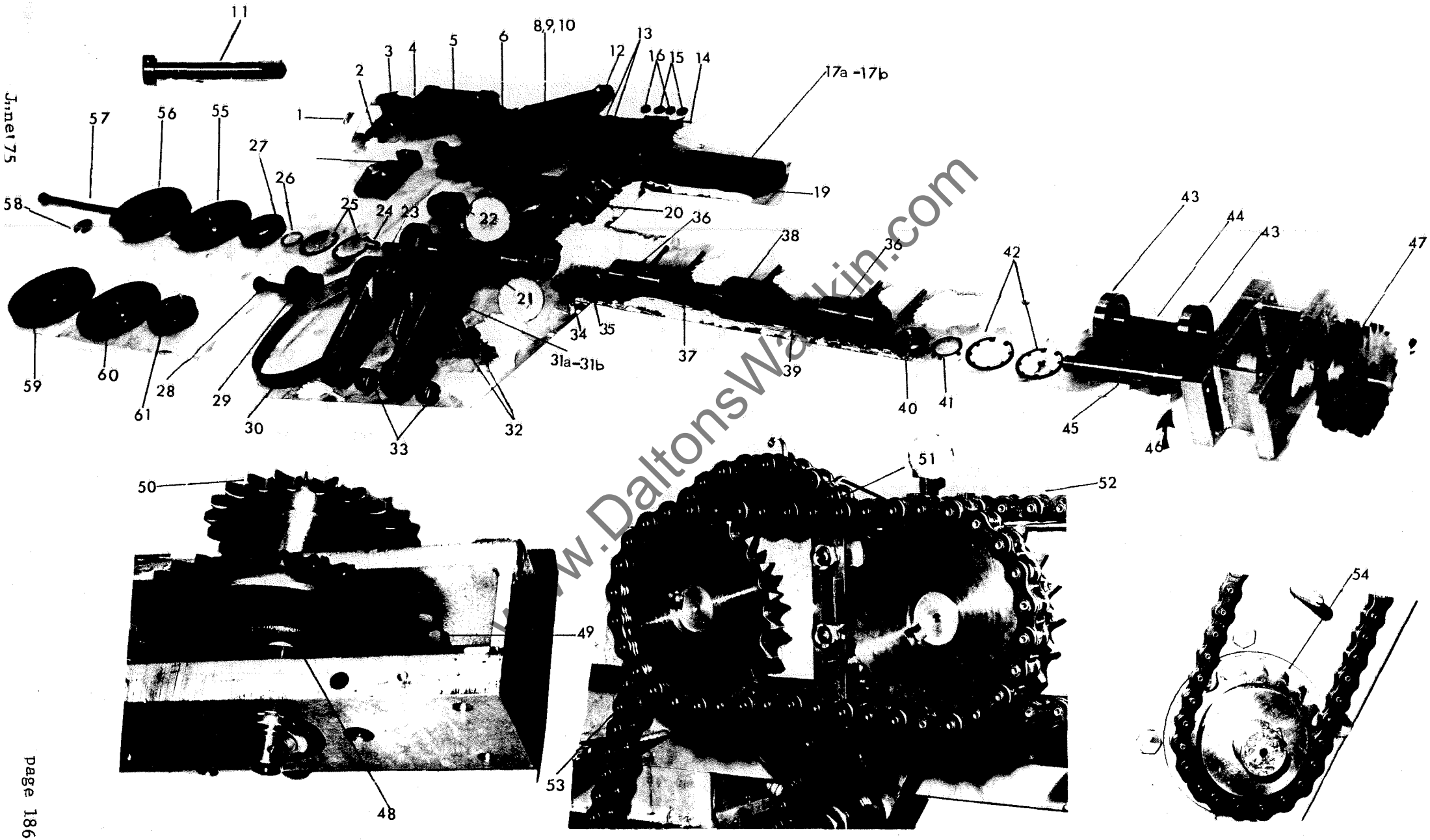
Head	Speed R.P.M.	Motor Size and Output	MOTOR Fenner Vee Belt Ref.	MOTOR Vee Pulley Ref.	MOTOR Fenner Taper Lock Bush	SPINDLE Vee Pulley Ref.	SPINDLE Fenner Taper Lock bush
Near Side Vertical	6000	D132S 7.5 KW (10.0 h.p.)	SPZ 2540 K30 77 157	031Z 0224 K30 78 209	Bush 2517 Bore 38mm K30 77 194	031Z 0134 K30 78 236	Bush 1610 Bore 38mm K30 77 186
	6000	D160M 11.0 KW (15.0 h.p.)	SPZ 2540 K30 77 157	031Z 0224 K30 78 209	Bush 2517 Bore 42mm K30 77 101	031Z 0134 K30 78 236	Bush 1610 Bore 38mm K3077 186
	7200	D112M 4.0 KW (5.5 h.p.)	SPZ 2540 K30 77 157	031Z 0262 K30 78 238	Bush 2012 Bore 28mm K30 77 114	031Z 0132 K30 78 235	Bush 1610 Bore 38mm K30 77 186
	7200	D132S 7.5 KW (10.0 h.p.)	SPZ 2540 K30 77 157	031Z 0264 K30 78 239	Bush 2517 Bore 38mm K30 77 194	031Z 0134 K30 78 236	Bush 1610 Bore 38mm K30 77 186
	7200	D160M 11.0 KW (15.0 h.p.)	SPZ 2650 K30 78 233	031Z 0264 K30 78 239	Bush 2517 Bore 42mm K30 77 101	031Z 0134 K30 78 236	Bush 1610 Bore 38mm K30 77 186
Second Fence Side Vertical	6000	D112M 4.0 KW (5.5 h.p.)	SPZ 1800 K30 77 118	031Z 0222 K30 78 235	Bush 2012 Bore 28mm K30 77 114	031Z 0132 K30 78 235	Bush 1610 Bore 38mm K30 77 186
	6000	D132S 7.5 KW (10.0 h.p.)	SPZ 1800 K30 77 118	031Z 0224 K30 78 209	Bush 2517 Bore 38mm K30 77 194	031Z 0134 K30 78 236	Bush 1610 Bore 38mm K30 77 186
	6000	D160M 11.0 KW (15 h.p.)	SPZ 1800 K30 77 118	031Z 0224 K30 78 209	Bush 2517 Bore 42mm K30 77 101	031Z 0134 K30 78 236	Bush 1610 Bore 38mm K30 77 186
	7200	D112M 4.0 KW (5. 5 h.p.)	SPZ 1800 K30 77 118	031Z 0262 K30 78 238	Bush 2012 Bore 28mm K30 77 114	031Z 0132 K30 78 235	Bush 1610 Bore 38mm K30 77 186
	7200	D132S 7.5 KW (10.0 h.p.)	SPZ 1800 K30 77 118	031Z 0264 K30 78 239	Bush 2517 Bore 38mm K30 77 194	031Z 0134 K30 78 236	Bush 1610 Bore 38mm K30 77 186
	7200	D160M 11.0 KW (15 h.p.)	SPZ 1900 K30 78 205	031Z 0264 K30 78 239	Bush 2517 Bore 42mm K30 77 101	031Z 0134 K30 78 236	Bush 1610 Bore 38mm K30 77 186

Vee Belts and Pulleys for machines having an Electrical Capacity of 60 hertz.
GEM 170

Head	Speed R.P.M.	Motor Size and Output	MOTOR Fenner Vee Belt Ref.	MOTOR Vee Pulley Ref.	MOTOR Fenner Taper Lock bush	SPINDLE Vee Pulley Ref.	SPINDLE Fenner Taper Lock bush
Top Horizontal	6000	D112M 4.0 KW (5.5 h.p.)	SPZ 1400 K30 78 229	031Z 0222 K30 78 237	Bush 2012 Bore 28mm K30 77 114	031Z 0132 K30 78 235	Bush 1610 Bore 38mm K30 77 186
	6000	D132S 7.5 KW (10.0 h.p.)	SPZ 1400 K30 78 229	031Z 0224 K30 78 209	Bush 2517 Bore 38mm K30 77 194	031Z 0134 K30 78 236	Bush 1610 Bore 38mm K30 77 186
	6000	D160M 11.0 KW (15.0 h.p.)	SPZ 1400 K30 78 229	031Z 0224 K30 78 209	Bush 2517 Bore 42mm K30 77 101	031Z 0134 K30 78 236	Bush 1610 Bore 38mm K30 77 186
	7200	D112M 4.0 KW (5.5 h.p.)	SPZ 1470 K30 77 129	031Z 0262 K30 78 238	Bush 2012 Bore 28mm K30 77 114	031Z 0132 K30 78 235	Bush 1610 Bore 38mm K30 77 186
	7200	D132S 7.5 KW (10.0 h.p.)	SPZ 1470 K30 77 129	031Z 0264 K30 78 239	Bush 2517 Bore 38mm K30 77 194	031Z 0134 K30 78 236	Bush 1610 Bore 38mm K30 77 186
	7200	D160M 11.0 KW (15.0 h.p.)	SPZ 1520 K30 77 119	031Z 0264 K30 78 239	Bush 2517 Bore 42mm K30 77 101	031Z 0134 K30 77 186	Bush 1610 Bore 38mm K30 77 186
Second Bottom Horizontal	6000	D112M 4.0 KW (5.5 h.p.)	SPZ 1320 K30 78 228	031Z 0222 K30 78 237	Bush 2012 Bore 28mm K30 77 114	031Z 0132 K30 78 235	Bush 1610 Bore 38mm K30 77 186
	6000	D132S 7.5 KW (10.0 h.p.)	SPZ 1320 K30 78 228	031Z 0224 K30 78 209	Bush 2517 Bore 38mm K30 77 194	031Z 0134 K30 78 236	Bush 1610 Bore 38mm K30 77 186
	6000	D160M 11.0 KW (15 h.p.)	SPZ 1320 K30 78 228	031Z 0224 K30 78 209	Bush 2517 Bore 42mm K30 77 101	031Z 0134 K30 78 236	Bush 1610 Bore 38mm K30 77 186
	7200	D112M 4.0 KW (5.5 h.p.)	SPZ 1400 K30 78 229	031Z 0262 K30 78 238	Bush 2012 Bore 28mm K30 77 114	031Z 0132 K30 78 235	Bush 1610 Bore 38mm K30 77 186
	7200	D160M 7.5 KW (10.0 h.p.)	SPZ 1400 K30 78 229	031Z 0262 K30 78 238	Bush 2517 Bore 38mm K30 77 194	031Z 0134 K30 78 236	Bush 1610 Bore 38mm K30 77 186

Vee Belts and Pulleys for machines having an Electrical Frequency of 60 hertz.
GEM 170

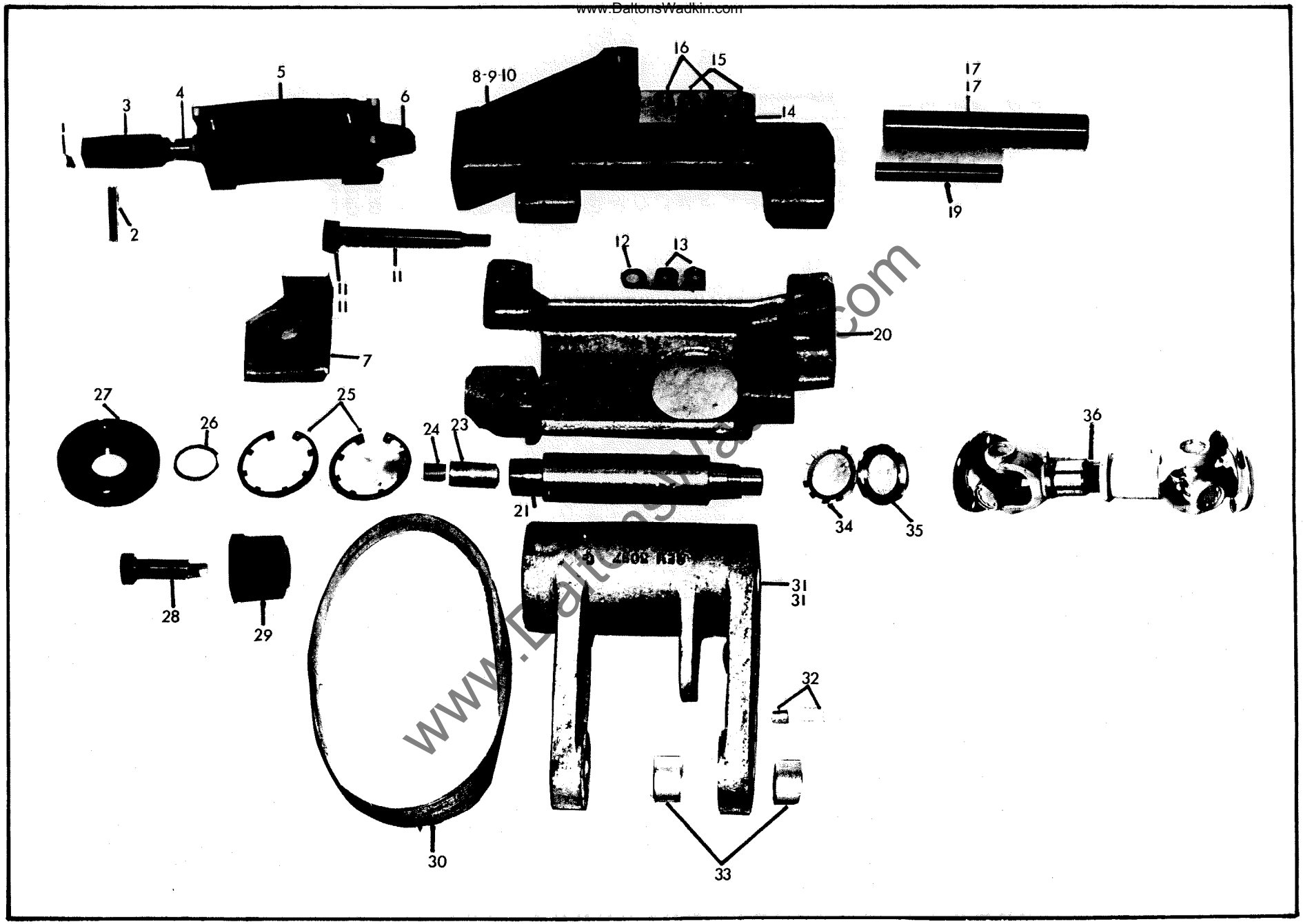
			MOTOR		SPINDLE		
Head	Speed R.P.M.	Motor Size and Output	Fenner Vee Belt Ref.	Vee Pulley Ref.	Fenner Taper Lock bush	Vee Pulley Ref.	Fenner Taper Lock bush
Second Bottom Horizontal	7200	D160M 11.0 KW (15 h.p.)	SPZ 1400 K30 78 229	031Z 0264 K30 78 239	Bush 2517 Bore 42mm K30 77 101	031Z 0134 K30 78 236	Bush 1610 Bore 38mm K30 77 186
Universal	6000	D112M 4.0 KW (5.5 h.p.)	SPZ 850 K30 78 213	031Z 0222 K30 78 237	Bush 2012 Bore 28mm K30 77 114	031Z 0132 K30 78 235	Bush 1610 Bore 38mm K30 77 186
	6000	D132S 7.5 KW (10.0 h.p.)	SPZ 850 K30 78 213	031Z 0223 K30 78 218	Bush 2012 K30 77 113 Bore 38mm	031Z 0133 K30 78 243	Bush 1610 Bore 38mm K30 77 186
	7200	D112M 4.0 KW (5.5 h.p.)	SPZ 940 K30 77 156	031Z 0262 K30 78 238	Bush 2012 Bore 28mm K30 77 114	031Z 0132 K30 78 235	Bush 1610 Bore 38mm K30 77 186
	7200	D132S 7.5 KW (10.0 h.p.)	SPZ 940 K30 77 156	031Z 0263 K30 78 244	Bush 2012 Bore 38mm K30 77 113	031Z 0133 K30 78 243	Bush 1610 Bore 38mm K30 77 186
Throating Head	5000	*D100L 3.0KW (4.0 h.p.) *Adaptor plate WU 516 Socket Head Screws 8mm x 20mm K05 25 187 - 4	No. 9030 8INI/inch (Timing)	WU 606		Fenner 22L100* WU 604	



FEED ROLL UNIT TRANSMISSION

FEED WORKS - SINGLE TRAILING SWING

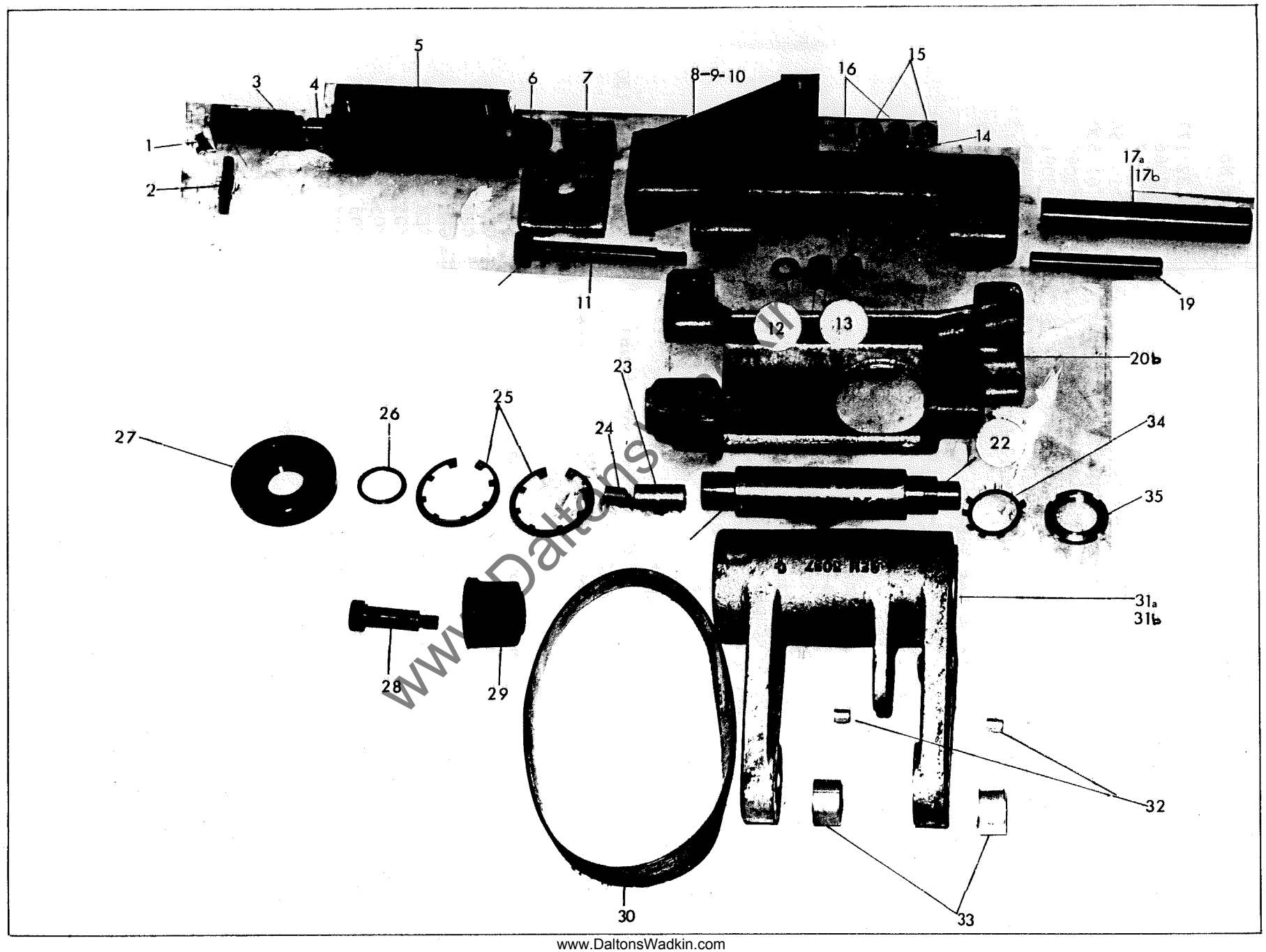
Drg. No.	Description	Part No.
1	Bush for Filboe Axle	K05 32 177
2	Pin for Filboe	GEM 3666
3	Filboe	GEM 3097
4	Locknut 7/16in. B.S.F.	K05 10 156
5	Martonair Double Acting Air Cylinder	K30 61 500
6	Air Cylinder Pivot Pin (not shown)	GEM 3096
7	Air Cylinder Support Bracket	GEM 3091
8	Swing Support	GEM 3088
9	M8 Hexagon Socket Screw x 12 long (not shown)	K05 25 164
10	M8 Hexagon Socket Screw x 45 long (not shown)	K05 25 192
11	Top Pivot	GEM 3052
11a	Collar dia. 16 bore	K05 28 209
11b	Taper Pin	K05 20 507
12	Plain Washer	K05 28 105
13	M10 Locknuts	K05 27 111
14	'Pitching' Stud	GEM 3098
15	Spherical Washer	GEM 143
16	M10 Locknuts	K05 27 110
17a	Swing Axle	GEM 132
18	Swing Axle Spacer (not shown)	GEM 3098
19	Bottom Pivot	GEM 3053
20a	Hinge Bracket	GEM 3089
21	Feed Roll Shaft	GEM 3332
22	Bearings 62 x 30 x 16mm (not shown)	Hoffman RSS 130
23	Feed Roll Shaft Bush	GEM 3325
24	Helicoil Insert M12 x 1.75 x 24 long	K30 33 114
25	Circlips Seeger JK Type dia. 62	K30 09 164
26	Spacer	GEM 3572
27	Feed Roll Mounting Flange	GEM 3333
28	Shoulder Screw	GEM 3095
29	Belt Anchor	GEM 3021
30	Stephans Endless Belt	GEM 3099
31	Trailing Swing	GEM 3056
31a	Leading Swing	GEM 3057
32	Bushes for item 6	K05 32 177
33	Bushes	K05 32 203
34	Tab Lockwasher	K05 32 256
35	Notched Nut	K05 27 207
36	Universal Joint	GEM 3564
37	Front Flange (not shown)	GEM 3563
38	Rear Flange (not shown)	GEM 3562



FEED WORKS - SINGLE TRAILING SWING

FEED WORKS SINGLE LEADING SWING

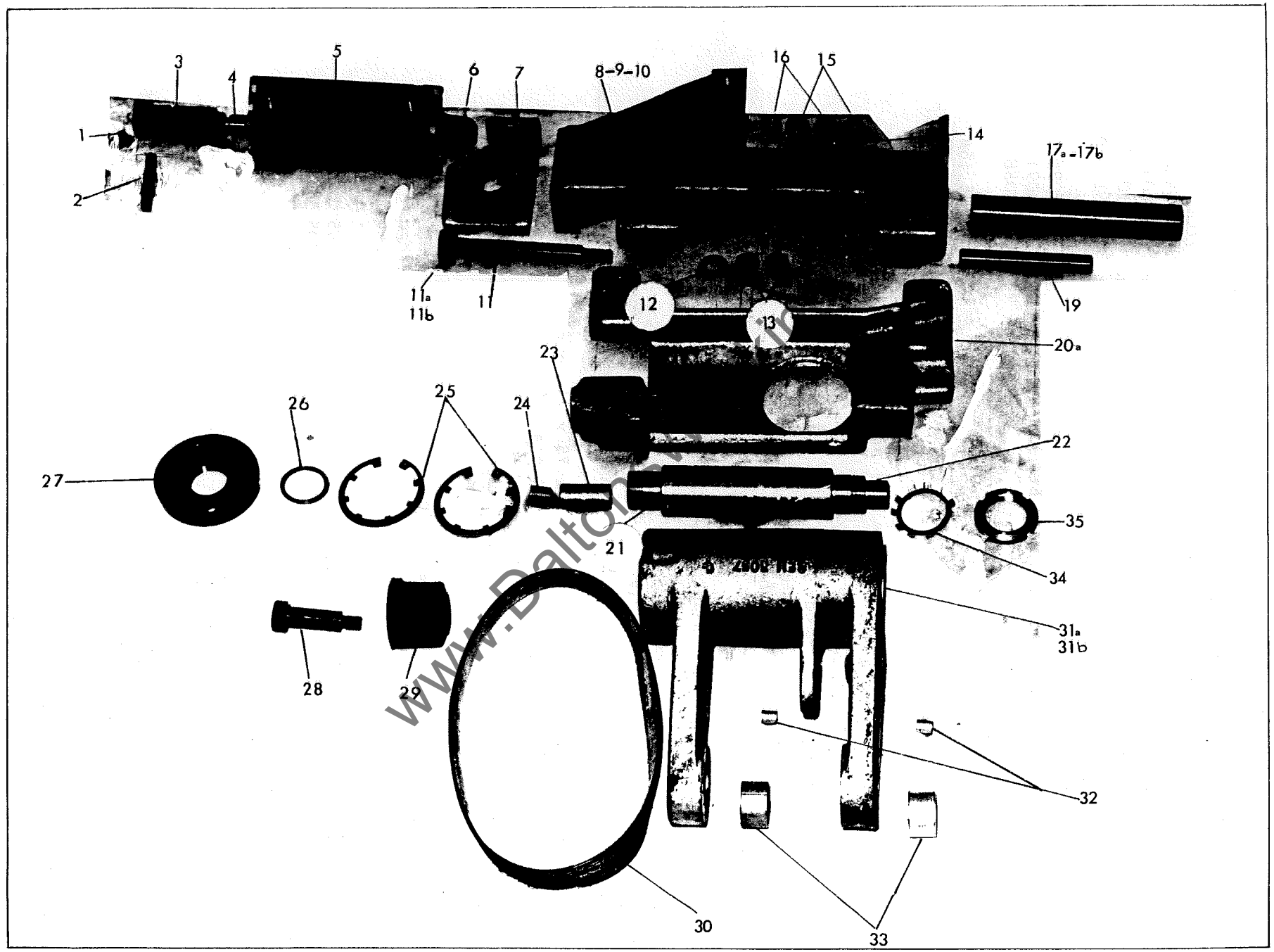
Drg. No.	Description	Part No.
1	Bush for Filboe Axle	KO5 32 177
2	Pin for Filboe	GEM 3066
3	Filboe	GEM 3097
4	Locknut 7/16in. B.S.F.	KO5 10 156
5	Martonair Double Acting Air Cylinder	K30 61 500
6	Air cylinder Pivot Pin (not shown)	GEM 3096
7	Air Cylinder Support Bracket	GEM 3091
8	Swing Support	GEM 3088
9	M8 Hex Socket Screw x 12 Lg in.	GEM 3666
	(not shown)	KO5 25 164
10	M8 Hex Socket Screw x 45 Lg in	GEM 3666
	(not shown)	KO5 25 192
11	Top Pivot	GEM 3052
11a	Collar dia 16 bore	KO5 28 209
11b	Taper Pin	KO5 20 507
12	Plain Washer	KO5 28 105
13	M10 Locknuts	KO5 27 111
14	'Pitching' Stud	GEM 3098
15	Spherical Washer	GEM 143
16	M10 Locknuts	KO5 27 110
17b	Swing Axle	GEM 132
18	Swing Axle Spacer (not shown)	GEM 3093
19	Bottom Pivot	GEM 3053
20b	Hinge Bracket	GEM 3090
21	Feed Roll Shaft	GEM 3332
22	Bearings 62 x 30 x 16mm (not shown)	Hoffman RSS 130
23	Feed Roll Shaft Bush	GEM 3325
24	Helicoil Insert M12 x 1.75 x 24 long	K30 33 114
25	Circlips Seeger JK Type dia. 62	K30 09 164
26	Spacer	GEM 3572
27	Feed Roll Mounting Flange	GEM 3333
28	Shoulder Screw	GEM 3095
29	Belt Anchor	GEM 3021
30	Stephans Endless Belt	GEM 3099
31b	Leading Swing	GEM 3056
32	Bushes for item 6	KO5 32 177
33	Bushes	KO5 32 203
34	Tab Lockwasher	KO5 27 256
35	Notched Nut	KO5 27 207



FEED WORKS SINGLE LEADING SWING

FEED WORKS - DOUBLE SWING UNIT

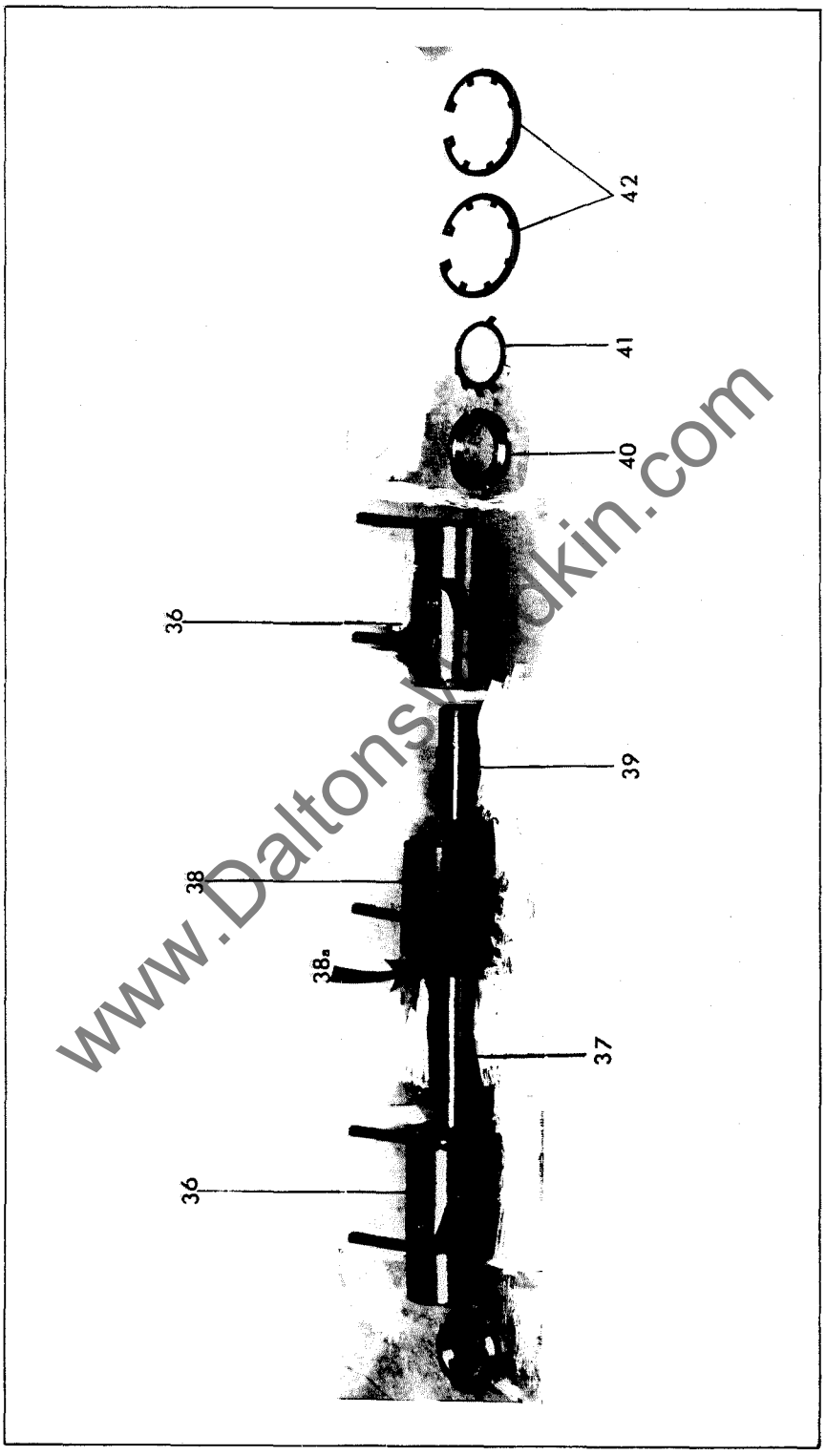
Drg. No.	Description	Part No.
1	Bush for Filboe Axle	KO5 32 177
2	Pin for Filboe	GEM 3666
3	Filboe	GEM 3097
4	Locknut 7/16in. B.S.F.	KO5 10 156
5	Martonair Double Acting Air Cylinder	K30 61 500
6	Air Cylinder Pivot Pin (not shown)	GEM 3096
7	Air Cylinder Support Bracket	GEM 3091
8	Swing Support	GEM 3088
9	M8 Hex Socket Screw x 12 Lg (not shown)	KO5 25 164
10	M8 Hex Socket Screw x 45 Lg. (not shown)	KO5 25 192
11	Top Pivot	GEM 3052
11a	Collar dia. 16 bore	KO5 28 209
11b	Taper Pin	KO5 20 507
12	Plain Washer	KO5 28 105
13	M10 Locknuts	KO5 27 111
14	'Pitching' Stud	GEM 3098
15	Spherical Washer	GEM 143
16	M10 Locknuts	KO5 27 110
17a	Swing Axle	GEM 132
18	Swing Axle Spacer (not shown)	GEM 3098
19	Bottom Pivot	GEM 3053
20a	Hinge Bracket	GEM 3089
21	Feed Roll Shaft	GEM 3332
22	Bearings 62 x 30 x 16mm (not shown)	Hoffman RSS 130
23	Feed Roll Shaft Bush	GEM 3325
24	Helicoil Insert M12 x 1.75 x 24 long	K30 33 114
25	Circlips Seeger JK Type dia. 62	K30 09 164
26	Spacer	GEM 3572
27	Feed Roll Mounting Flange	GEM 3333
28	Shoulder Screw	GEM 3095
29	Belt Anchor	GEM 3021
30	Stephans Endless Belt	GEM 3099
31a	Trailing Swing	GEM 3056
31b	Leading Swing	GEM 3057
32	Bushes for item 6	KO5 32 177
33	Bushes	KO5 32 203
34	Tab Lockwasher	KO5 32 256
35	Notched Nut	KO5 27 207



FEED WORKS - DOUBLE SWING UNIT

FEED ROLL UNIT TRANSMISSION

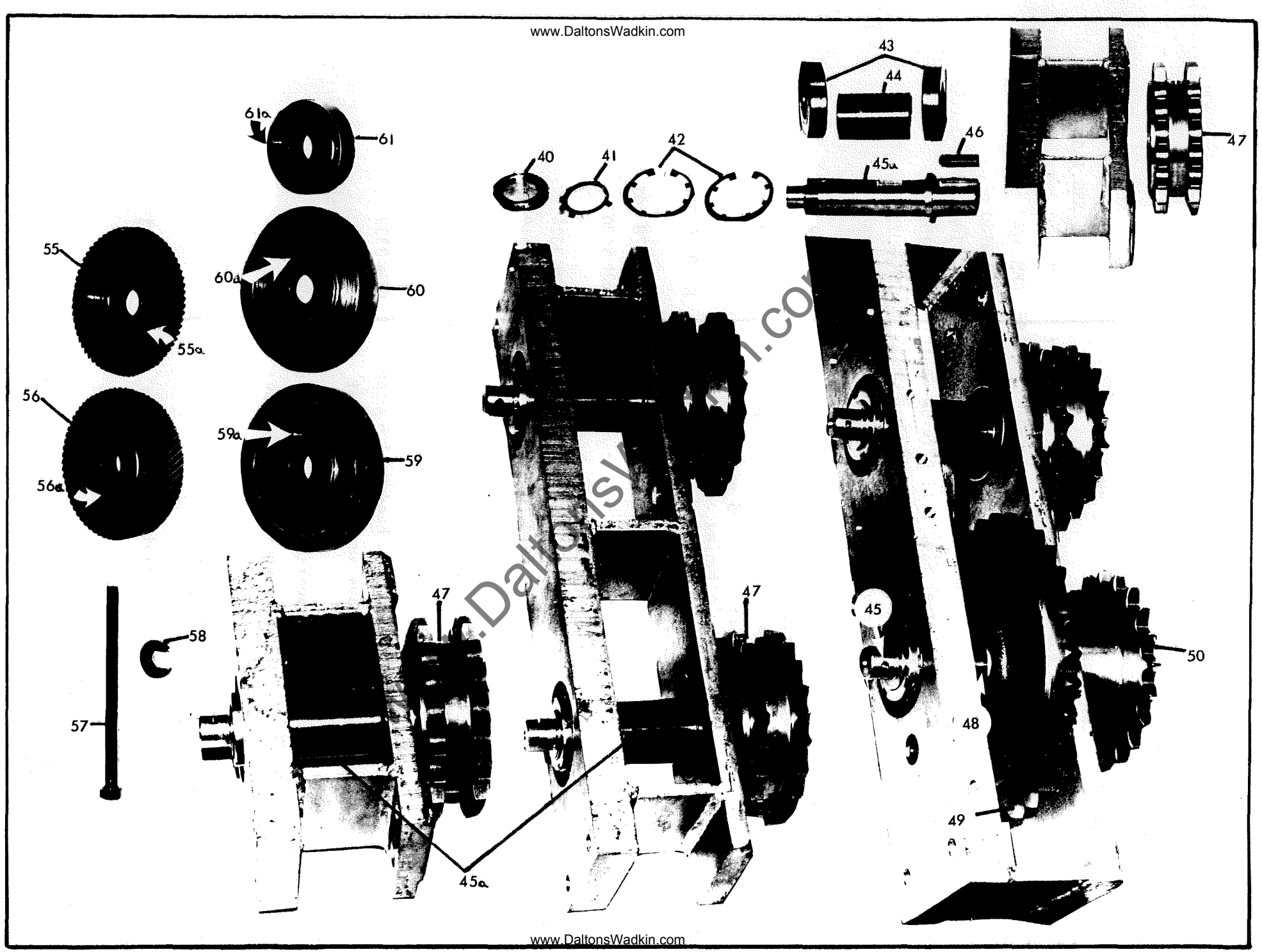
Drg. No.	Description	Part No.
36	Universal Joint	GEM 2171
37	Driven Shaft	GEM 2131
38	Drive Sleeve	GEM 2128
38a	Key	GEM 2130
39	Driving Shaft	GEM 3049
40	Chamfered Notch Nut	K 05 27 208
41	Tab Washer	K 05 27 257
42	Circlip	K 30 09 161



FEED ROLL UNIT TRANSMISSION

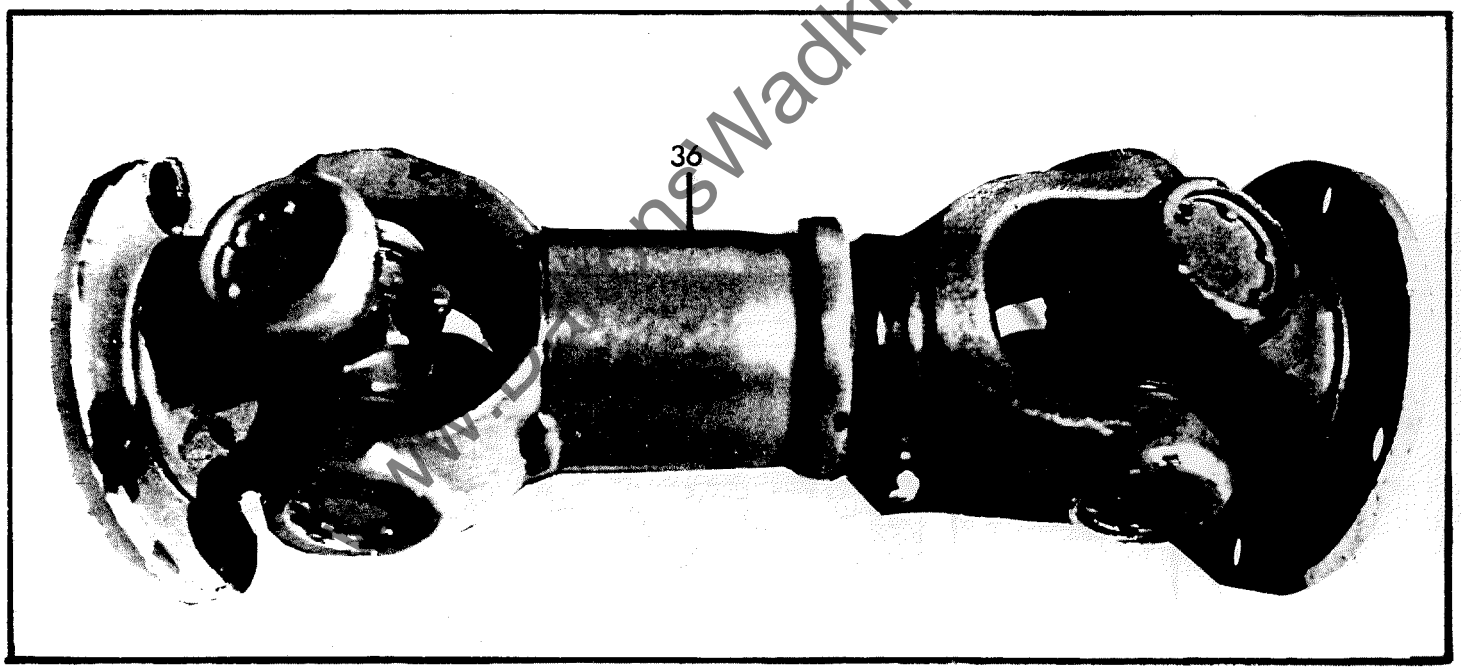
FEED ROLL UNIT TRANSMISSION

Drg. No.	Description	Part No.
43	Bearings	Hoffman RSS 135
44	Spacer for Rear Feed Roll Driving Shaft	GEM 3110
* 45 a	Rear Intermediate Feed Roll Driving Shaft	GEM 3747
46	Key	GEM 2130
47	Feed Roll Driving Sprocket ~~link,~~	GEM 3106
48	Spacer for Rear Feed Roll Driving Shaft	GEM 3109
49	Feed Roll Input Sprocket	GEM 3320
50	Feed Roll Driving Sprocket	GEM 3105
51	Renold Roller Chain 40 pitches of 19.05 pitch including connecting	K 30 09 360
52	Renold Roller Chain 50 pitches of 19.05 pitch including connecting link	K 30 09 360
53	Renold Roller Chain 105 pitches of 19.05 pitch including cranked link and connector link	K 30 09 354
54	Feedworks Reduction Gearbox output Pinion 15T x 19.05 pitch	K 30 78 101
55	Spiral Saw Tooth Feed Roll - Narrow	GEM 3620
55a	Spiral Saw Tooth Feed Roll Drive pin	GEM 3324
56	Spiral Saw Tooth Feed Roll - wide	GEM 3619
56a	Spiral Saw Tooth Feed Roll Dowel No. 8 x 16 Lg	KO5 29 142
57	Draw Bolt	GEM 3331
58	'C' Washer	GEM 3326
59	Presscallon Covered Feed Roll - wide	GEM 3339
59a	Presscallon Covered Feed Roll Dowel No. 8 x 16 Lg	K 05 29 142
60	Presscallon Covered Feed Roll - Narrow	GEM 3341
60a	Presscallon Covered Feed Roll-Drive Pin	GEM 3324
61	Feed Roll Spacer	GEM 3334
61a	Feed Roll Spacer Dowel No. 8 x 16 lg.	K 05 29 142
*45	Rear Feed Roll Driving Shaft	GEM 3101



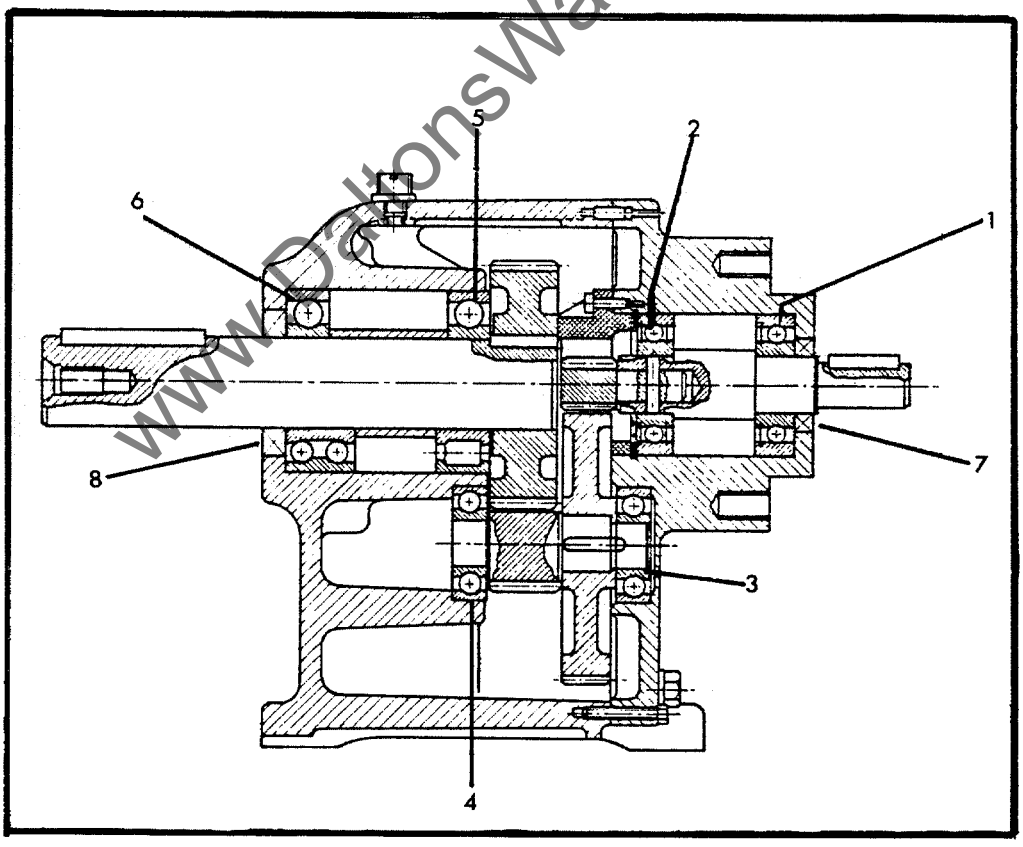
UNIVERSAL JOINT

Drg. No.	Description	Part No.
36	Universal Joint	GEM 3564
37	Front Flange (not shown)	GEM 3563
38	Rear Flange (not shown)	GEM 3562
39	Cap head socket screws (12 off) M6 x 12mm long (not shown)	KO5 25 164



VARIABLE SPEED FEED DRIVE GEARBOX FOR OVERHEAD FEED ROLLS

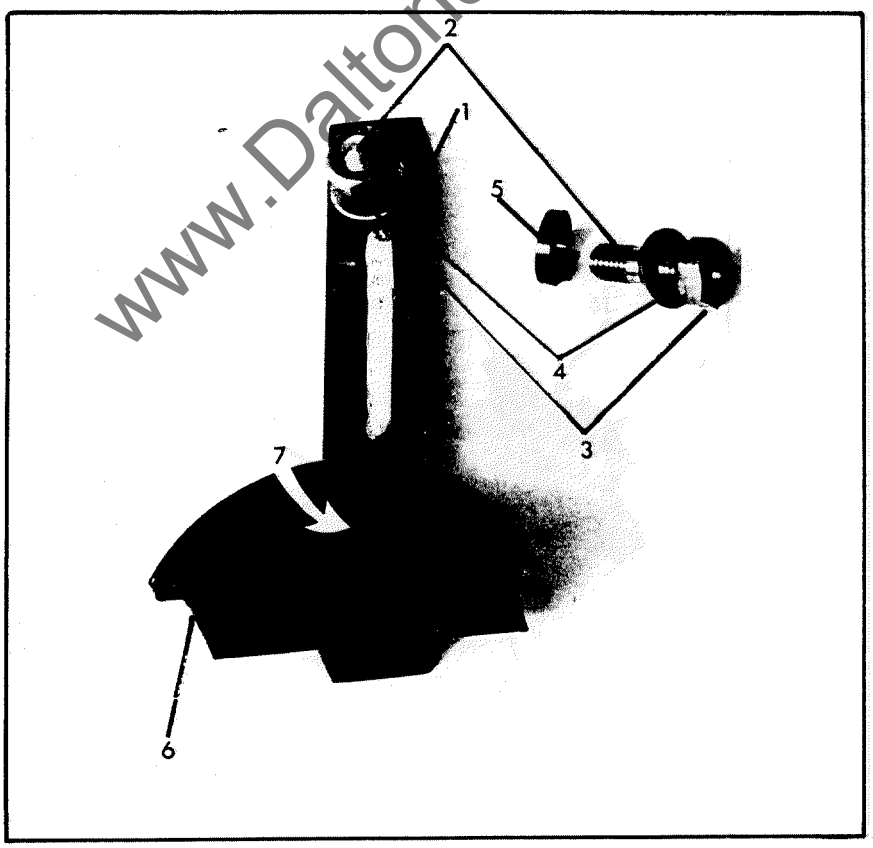
Drg. No.	Description	Part No.
1	Input Shaft Ball Bearing	Simplana ref. 6305 ZZ
2	Input Shaft Ball Bearing	Simplana ref. 6305 Z
3	Intermediate Shaft Ball Bearing	Simplana ref. 6304
4	Intermediate Shaft Ball Bearing	Simplana ref. 6304
5	Output Shaft Ball Bearing	Simplana ref. 6208
6	Output Shaft Ball Bearing	Simplana ref. 6208
Seals to D.I.N. 3760		
7	Input Shaft Seal	Simplana ref. 25 x 47 x 7BA
8	Output Shaft Seal	Simplana ref. 40 x 65 x 7BA



CHAIN TENSIONERS

WIDE CHAIN TENSIONER FOR REAR FEED ROLL DRIVING SHAFT BRACKET.

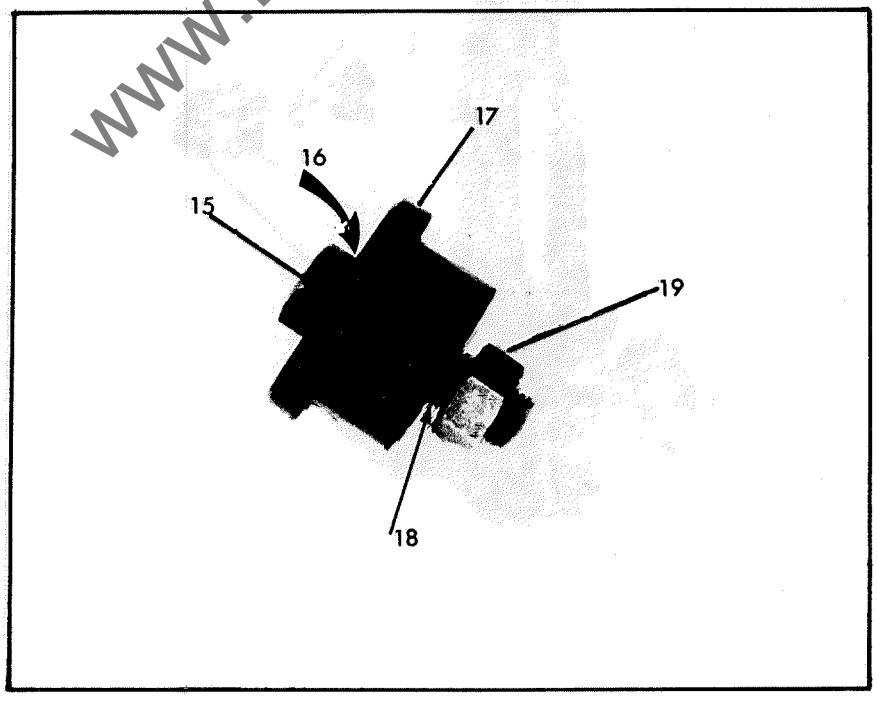
Drg. No.	Description	Part No.
1	Chain Tensioner plate for intermediate drive	GEM 3113
2	Stud M10 x 40mm long	KO5 26 266
3	Hex Nuts M10	KO5 27 103
4	Washers 10mm Bore	KO5 28 103
5	Spacing collar for chain tensioner plate	GEM 3114
6	Chain Tensioner skid for intermediate drive	GEM 3103
7	Socket Head Cap screw M8 x 30mm long	KO5 25 189



CHAIN TENSIONER (cont.)

CHAIN TENSIONER FOR MAIN DRIVE

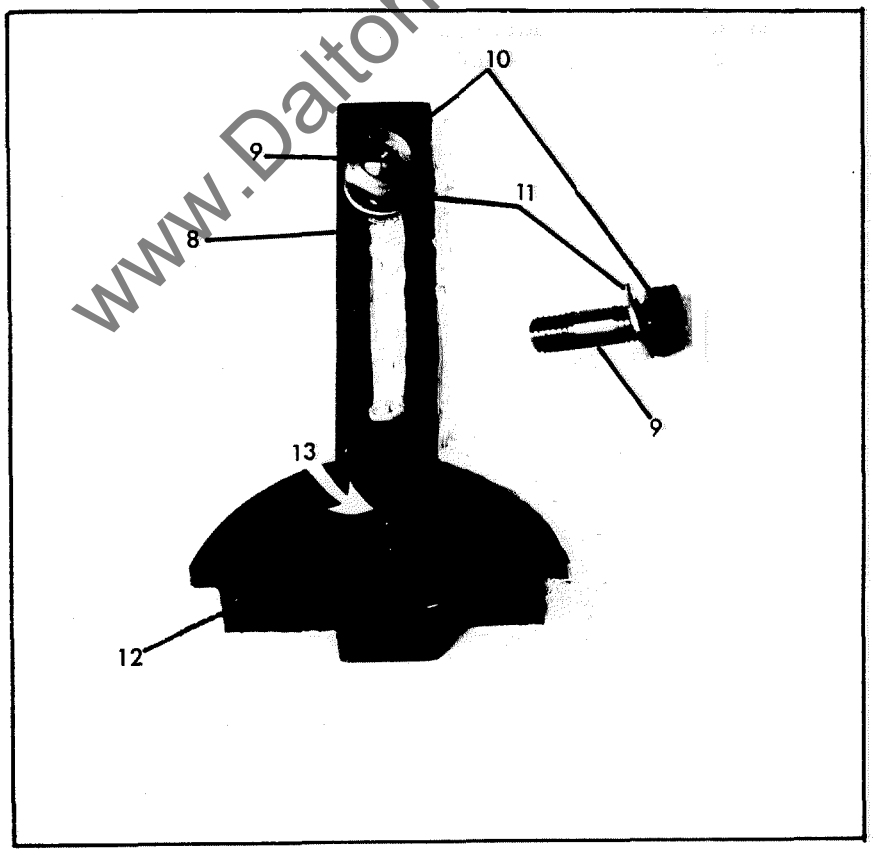
Drg. No.	Description	Part No.
15	Hex Head Screw M16 x 60mm long	KO5 25 734
16	Bush for Main Drive Tensioner	GEM 3115
17	Chain Tensioner	GEM 3104
18	Washer M16	KO5 28 106
19	Hex Head Locknut	KO5 27 112



CHAIN TENSIONERS (cont.)

NARROW CHAIN TENSIONER FOR REAR FEED ROLL DRIVING SHAFT BRACKET

Drg. No.	Description	Part No.
8	Chain Tensioner Plate for Intermediate drive	GEM 3113
9	Stud M10 x 40mm long	KO5 26 266
10	Hex Nuts M10	KO5 27 103
11	Washers 10mm bore	KO5 28 104
12	Chain tensioner skid for intermediate drive	GEM 3102
13	Socket head cap screw M8 x 30mm long	KO5 25 189

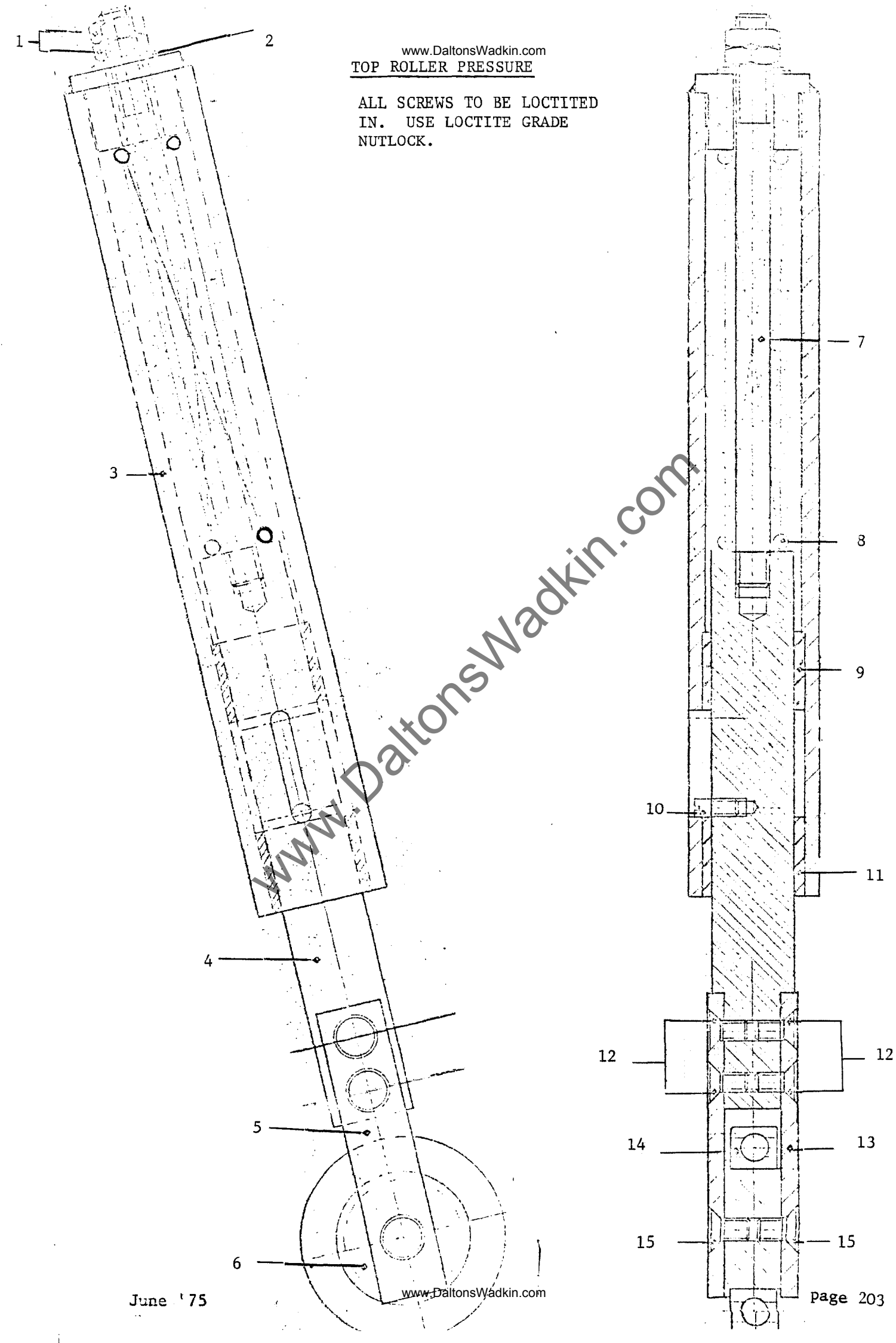


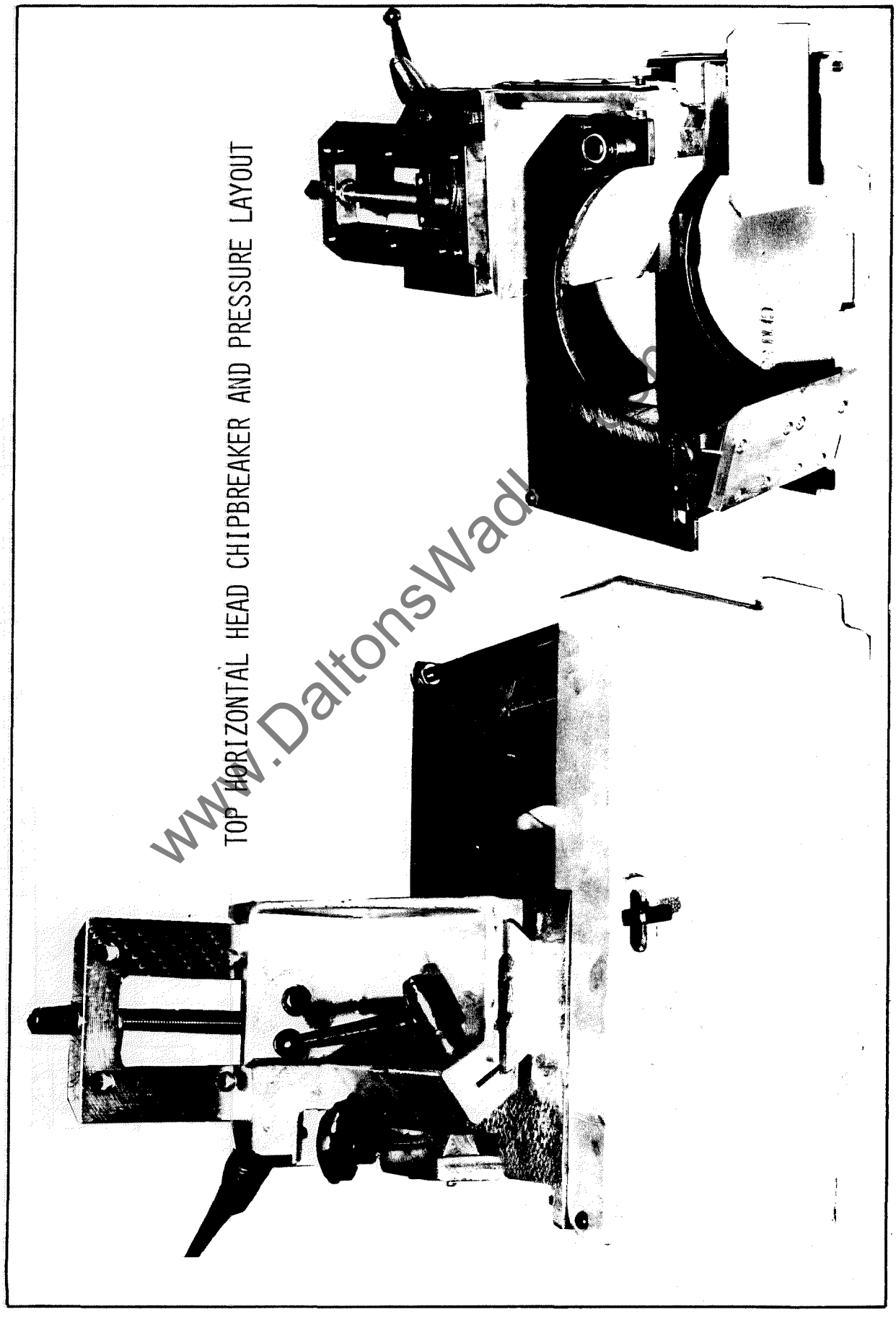
TOP ROLLER PRESSURE

Drg. No.	Description	Part No.	No. Off
1	M10 Washer	KO5.28.104	2
2	M10 Washer	KO5.28.104	1
3	Pressure Body Casing	GEM 3315	1
4	Pressure Body	GEM 3316	1
5	Side Plate	GEM 3899	1
6	Flange Axle for Bearing	GEM 3313	1
7	Stud	KO5.26.285	1
8	Flexo Spring	K30.73.803	1
9	Oil Retaining Bush	KO5.31.177	1
10	Stop Pin	GEM 3311	1
11	Oil Retaining Bush	KO5.31.177	1
12	Countersunk Screws M6 x 12	KO5.25.324	4
13	Side Plate	GEM 3899	1
14	Sealed for Life Ball Race RHP 6007-2RS O/D 62 x I/D 35 x 14 wide	KO6.01.124	1
15	Countersunk Screws M6 x 12	KO5.25.324	2
16	Pressure Tyre (not shown) pressed on Part 14	GEM 3900	
17	Hexagon Socket Countersunk Screws M6 x 12 for parts 4 and 6 (not shown	KO5 25 324	

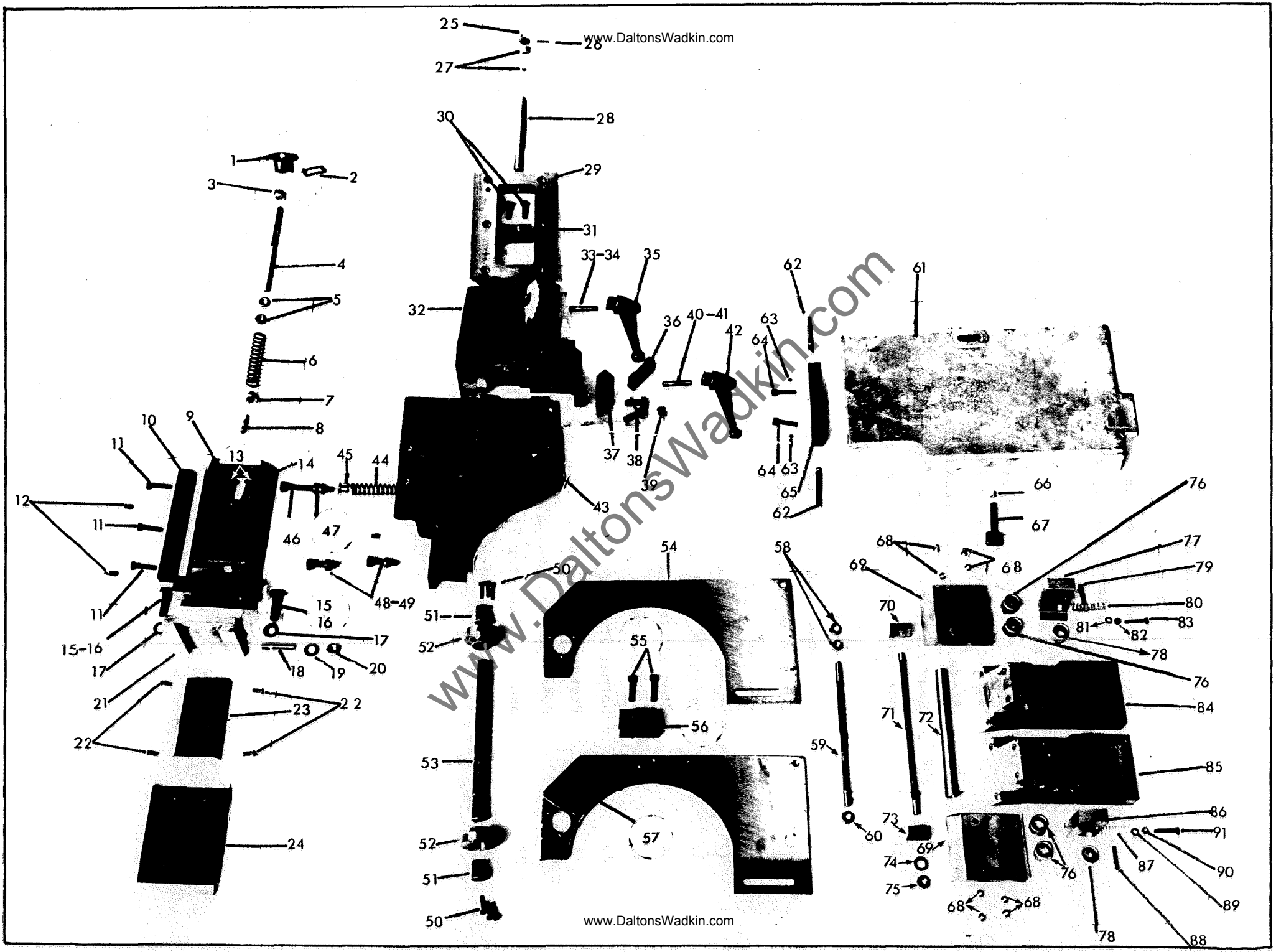
TOP ROLLER PRESSURE

ALL SCREWS TO BE LOCTITED IN. USE LOCTITE GRADE NUTLOCK.





TOP HORIZONTAL HEAD CHIPBREAKER AND PRESSURE LAYOUT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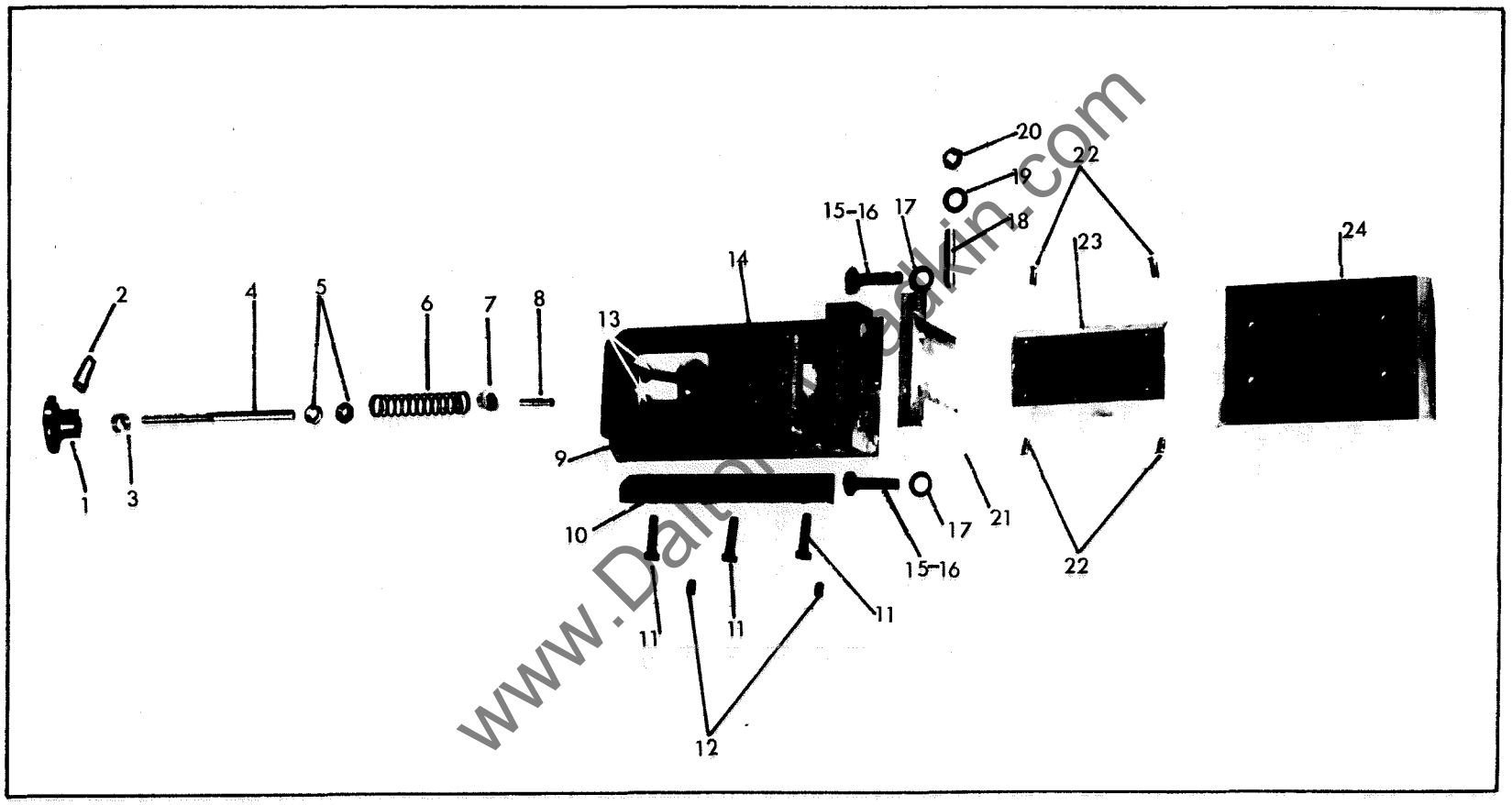
TOP HORIZONTAL HEAD CHIPBREAKER AND PRESSURE LAYOUT

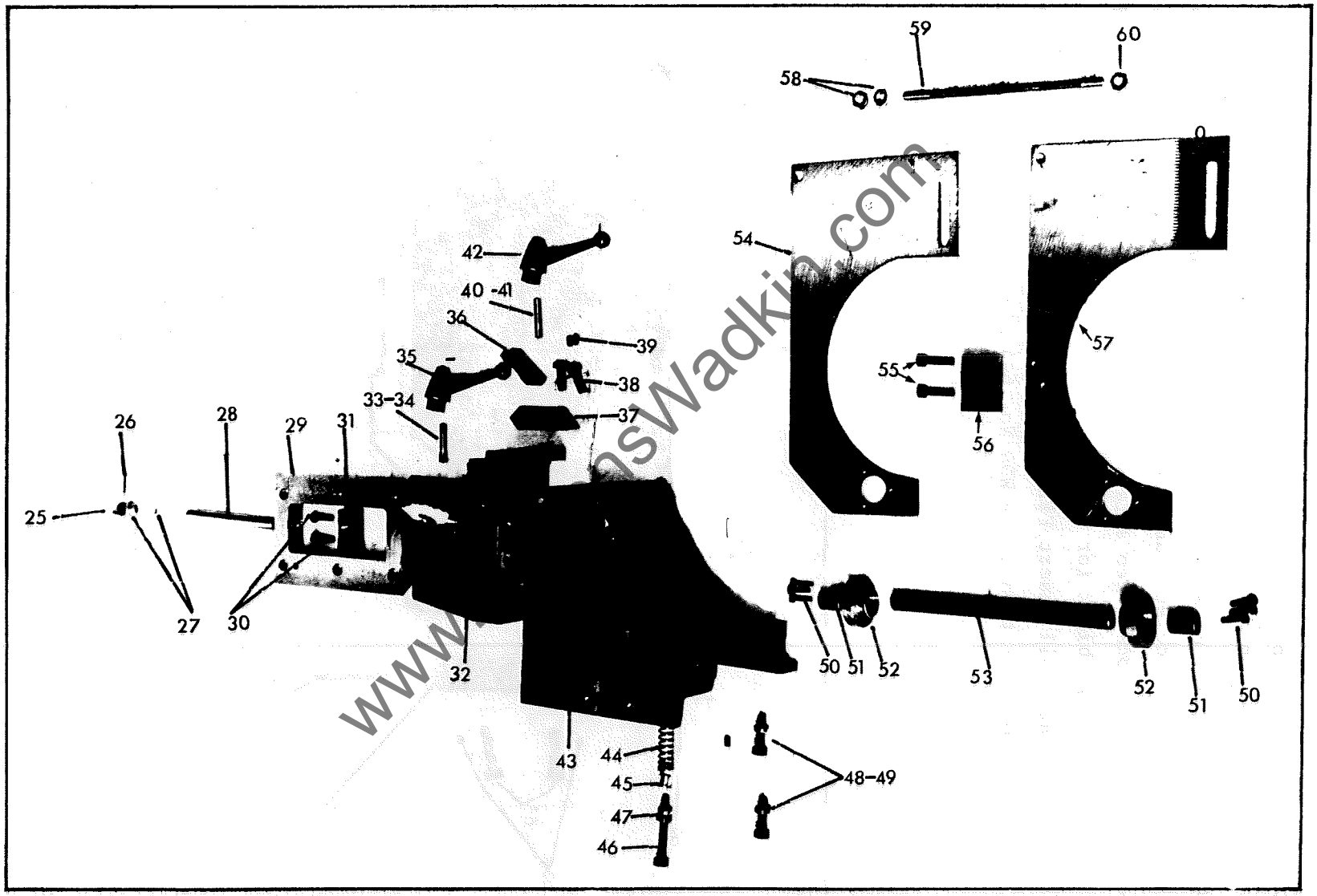
Drg. No.	Description	Part No.
1	Handwheel 10mm bore	KO5 30 256
2	Tension Pin 4mm dia. x 20mm long	KO5 20 482
3	Collar 20mm dia. x 10mm bore x 10mm long	KO5 28 205
4	Adjusting screw for Top Pressure	GEM 3366
5	Hex. locknuts	KO5 27 110
6	Spring	GEM 3775
7	Guide for Top Head Chipbreaker Spring	GEM 3358
8	Tension pin 8mm dia. x 20mm long	KO5 20 538
9	Slide for top head pressure	GEM 3348
10	Wear strip for Top Head Pressure Slide	GEM 3365
11	Hex Head Screws M8 x 30mm long	KO5 25 518
12	Nyloc Hex Socket Half Dog Point Screw M8 x 15mm long	KO5 26 571
13	Hex Socket Cap Screws M8 x 30mm long	KO5 29 189
14	Nut for Top Head Pressure Slide	GEM 3291
15	Stud M10 x 45mm	KO5 26 267
16	Normal thickness nuts M10	KO5 27 103
17	Bright M Steel Washer 10mm dia.	KO5 28 104
18	Stud M10 x 40mm	KO5 26 266
19	Bright M Steel washer 10mm dia.	KO5 28 104
20	Normal Thickness Nut M10	KO5 27 103
21	Pressure Pad Guide for Top Horizontal Head	GEM 3368
22	Posidrive CSK Head M6 x 20mm	KO5 25 326
23	Backing plate for Top Head Pressure Pad	GEM 3369
24	Pressure Pad for Top Head	GEM 3370



TOP HORIZONTAL HEAD CHIPBREAKER AND PRESSURE LAYOUT
PART NUMBERS 1 - 24

TOP HORIZONTAL CHIPBREAKER AND PRESSURE LAYOUT (cont.)

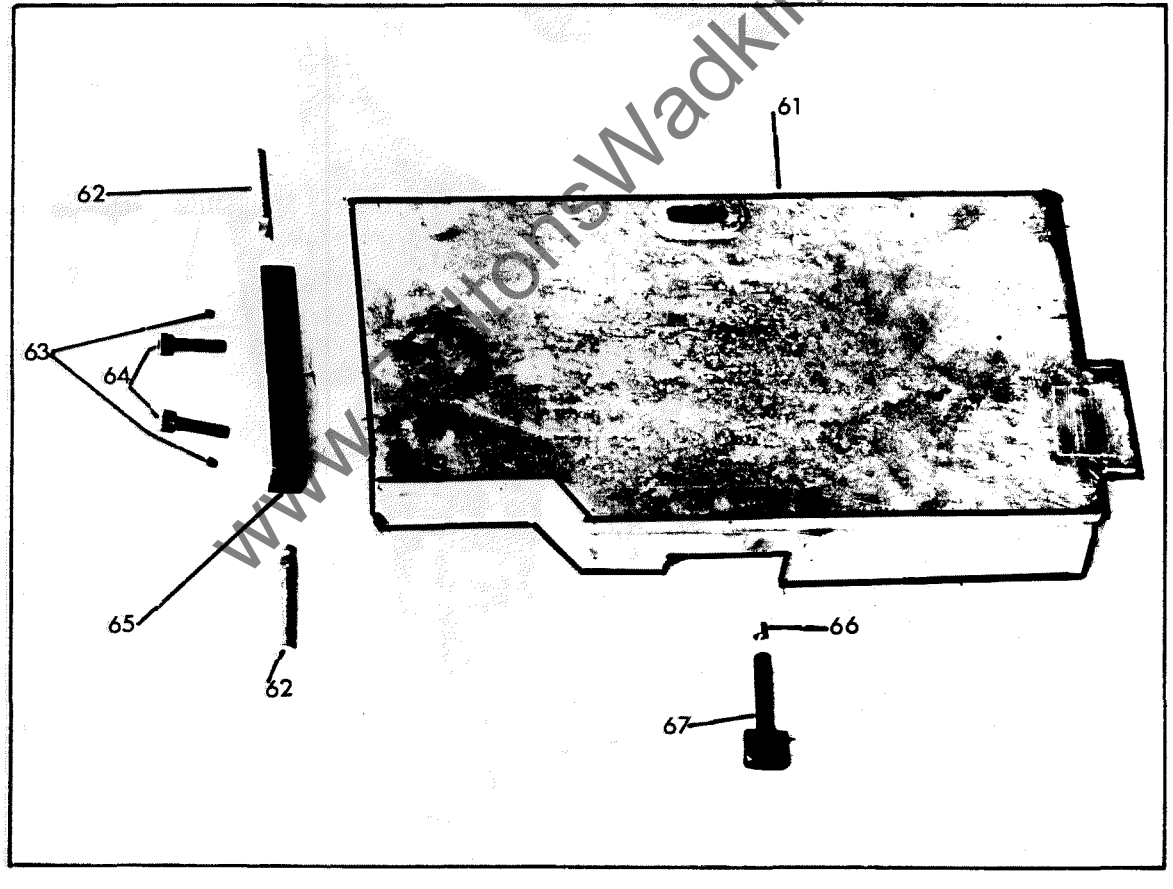
Drg. No.	Description	Part No.
25	Square Boss for adjusting screw	GEM 3351
26	Taper Pin No.000	KO5 20 501
27	Flanged oil retaining bushes 16mm dia. x 10mm bore x 10mm long	KO5 31 310
28	Adjusting screw for Top Head Chipbreaker Slide	GEM 3360
29	Slide for Top Head Chipbreaker	GEM 3345
30	Hex Head Screws M10 x 30mm long	KO5 25 531
31	Nut for Top Head Chipbreaker Slide	GEM 3352
32	Slide for Mounting Top Head Chipbreaker	GEM 3344
33	Stud 10mm dia. x 50mm long	KO5 26 268
34	Bright Ms Washer 10mm dia. (not shown)	KO5 28 104
35	Female adjustable hand lever M10 (Black)	KO5 30 301
36	Clamp for Top Head Chipbreaker	GEM 3289
37	Wear Strip for Top Head Chipbreaker Slide	GEM 3290
38	Hex Head Screws M10 x 35mm long	KO5 25 532
39	Nyloc Grub Screws M8 x 15mm long	KO5 26 571
40	Stud 10mm dia. x 50mm long	KO5 26 268
41	Bright Ms Washer 10mm dia. (not shown)	KO5 28 104
42	Female Adjustable Hand lever M10 (Black)	KO5 30 301
43	Pivot bracket for Top Head Chipbreaker	GEM 3343
44	Top Head Chipbreaker Shoe Spring	KO5 24 101
45	Guide for Top Head Chipbreaker Spring	GEM 3358
46	Hex Head Screw M10 x 80mm long	KO5 25 620
47	Locknuts M10	KO5 27 110
48	Hex Head Screw M10 x 35mm long	KO5 25 532
49	Locknuts M10	KO5 27 110
50	Hex Socket Cap Screws M5 x 20mm long	KO5 25 145
51	Bronze Oil Retaining Bush 25mm dia. x 20mm bore x 20mm long	KO5 31 564
52	Boss for Top Head Chipbreaker Sideplate	GEM 3353
53	Shaft for Top Head Chipbreaker Sideplate	GEM 3361
54	Sideplate for Top Head Chipbreaker (rear)	GEM 3350
55	Hex Socket Cap Screws M8 x 30mm long	KO5 25 189
56	Spring stop for Top Head Chipbreaker	GEM 3292
57	Sideplate for Top Head Chipbreaker (front)	GEM 3349
58	Hex nuts normal thickness M10	KO5 27 103
59	Tie bar for top head chipbreaker sideplates	GEM 3356
60	Hex nut normal thickness M10	KO5 27 103



TOP HORIZONTAL HEAD CHIPBREAKER AND PRESSURE LAYOUT
PART NUMBERS 25 - 60

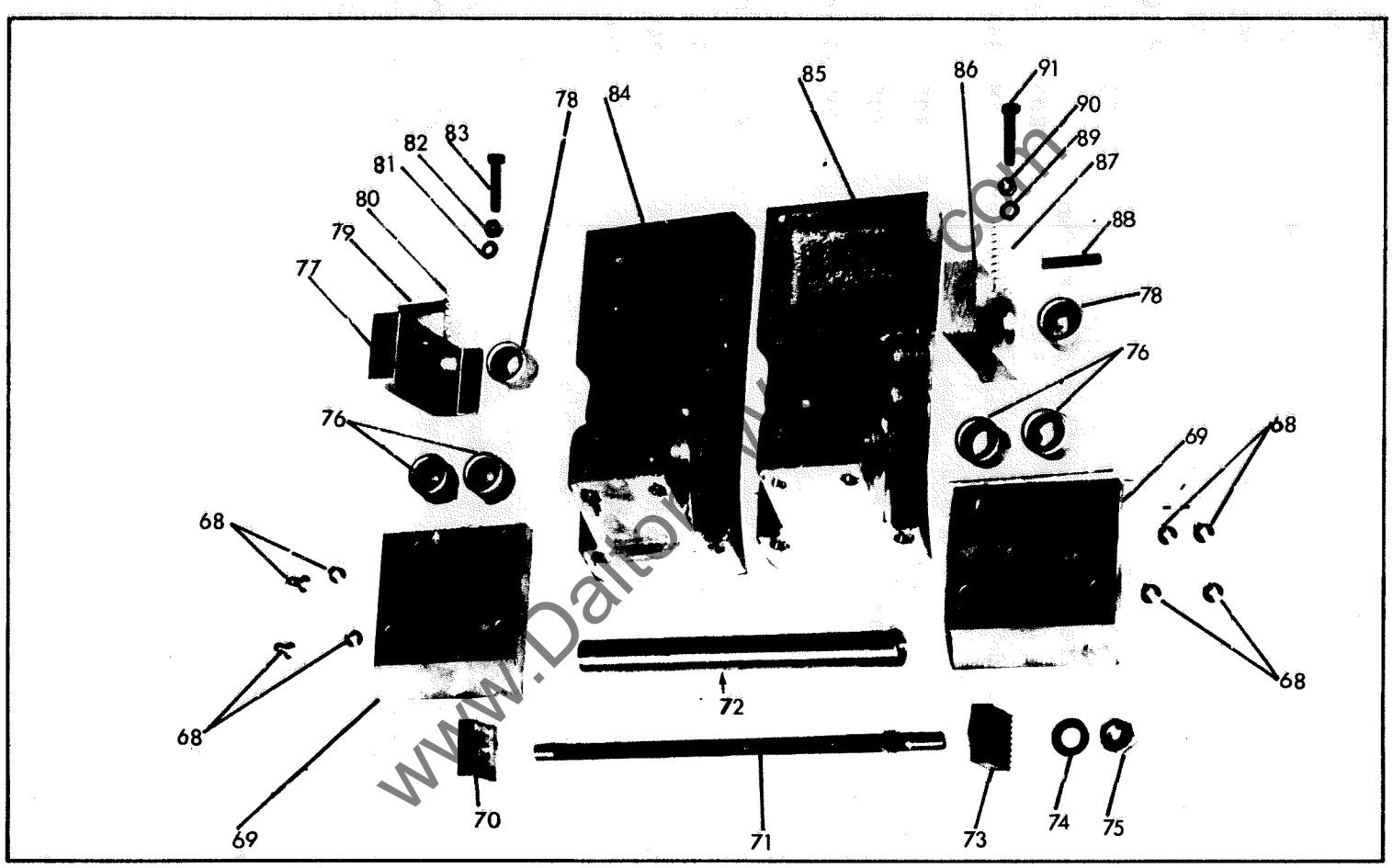
TOP HORIZONTAL HEAD CHIPBREAKER AND PRESSURE LAYOUT (cont.)

Drg. No.	Description	Part No.
61	Door for Top Head Chipbreaker	GEM 3372
62	Hinge Pin for Door	GEM 3076
62a	Bright Ms Washer 10mm dia. (not shown)	K05 28 104
63	Hex. Socket Grub Screw M6 x 15mm long	K05 26 116
64	Hex Socket cap screws M8 x 25mm long	K05 25 188
65	Hinge block for door	GEM 3072
66	Helicoil insert F110 M10 x 1.5 x 10mm long	K30 33 115
67	Quarter turn screw WDS No. 604 203	K30 73 862

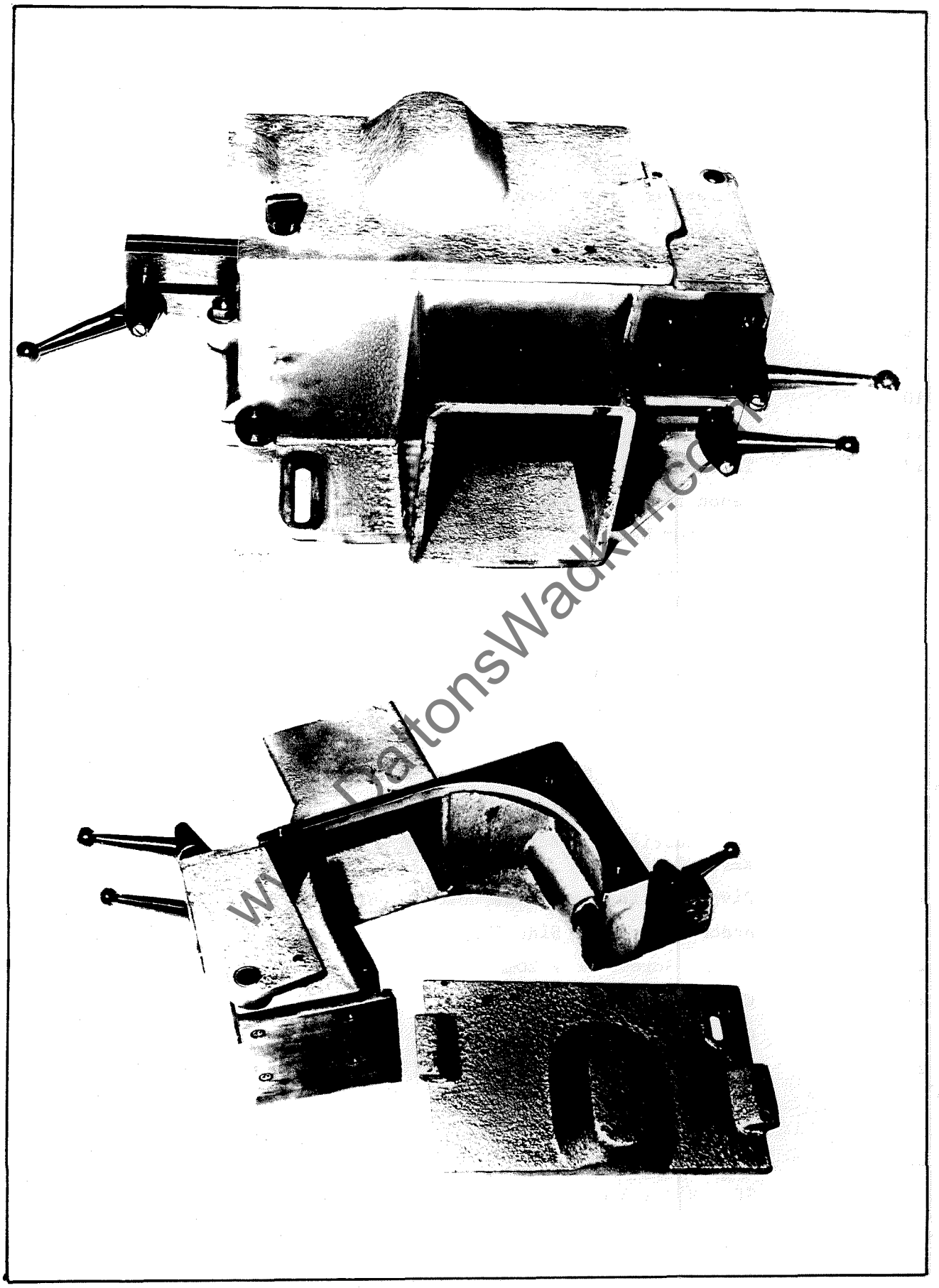


TOP HORIZONTAL HEAD CHIPBREAKER AND PRESSURE LAYOUT (cont.)

Drg. No.	Description	Part No.
68	CSK Head Posidrive Screws M6 x 20mm long	KO5 25 326
69	Plate for Top Head Chipbreaker Shoe	GEM 3364
70	Nut for Top Head Chipbreaker Shoe Clamp	GEM 3288
71	Stud for Top Head Chipbreaker Shoe Clamp	GEM 3363
72	Bearing Tube for Top Head Chipbreaker Shoes	GEM 3362
73	Serrated Clamp for Top Head Chipbreaker	GEM 3357
74	Bright Ms Washer 10mm dia.	KO5 28 104
75	Nut M10	KO5 27 103
76	Bronze oil retaining bush 14 mm dia. x 10mm bore x 10mm long.	KO5 31 513
77	Spring block for top head chipbreaker (rear)	GEM 3355
78	Bronze oil retaining bush 25mm dia. x 20mm bore x 15mm long	KO5 31 540
79	Tension Pin 6mm dia. x 32mm long	KO5 20 526
80	Spring	KO5 24 101
81	Washer M steel M6	
82	Nut M8	KO5 27 109
83	Hex Hd. Screw M8 x 30mm long	KO5 25 518
84	Chipbreaker shoe top head (rear)	GEM 3347
85	Chipbreaker Shoe Top Head (front)	GEM 3346
86	Spring Block for Top Head Chipbreaker (Rear)	GEM 3354
87	Spring	KO5 24 101
88	Tension Pin 6mm dia. x 32mm long	KO5 20 526
89	Washer M steel M6	KO5 28 102
90	Nut M8	KO5 27 109
91	Hex Hd. Screw M8 x 30mm long	KO5 25 518



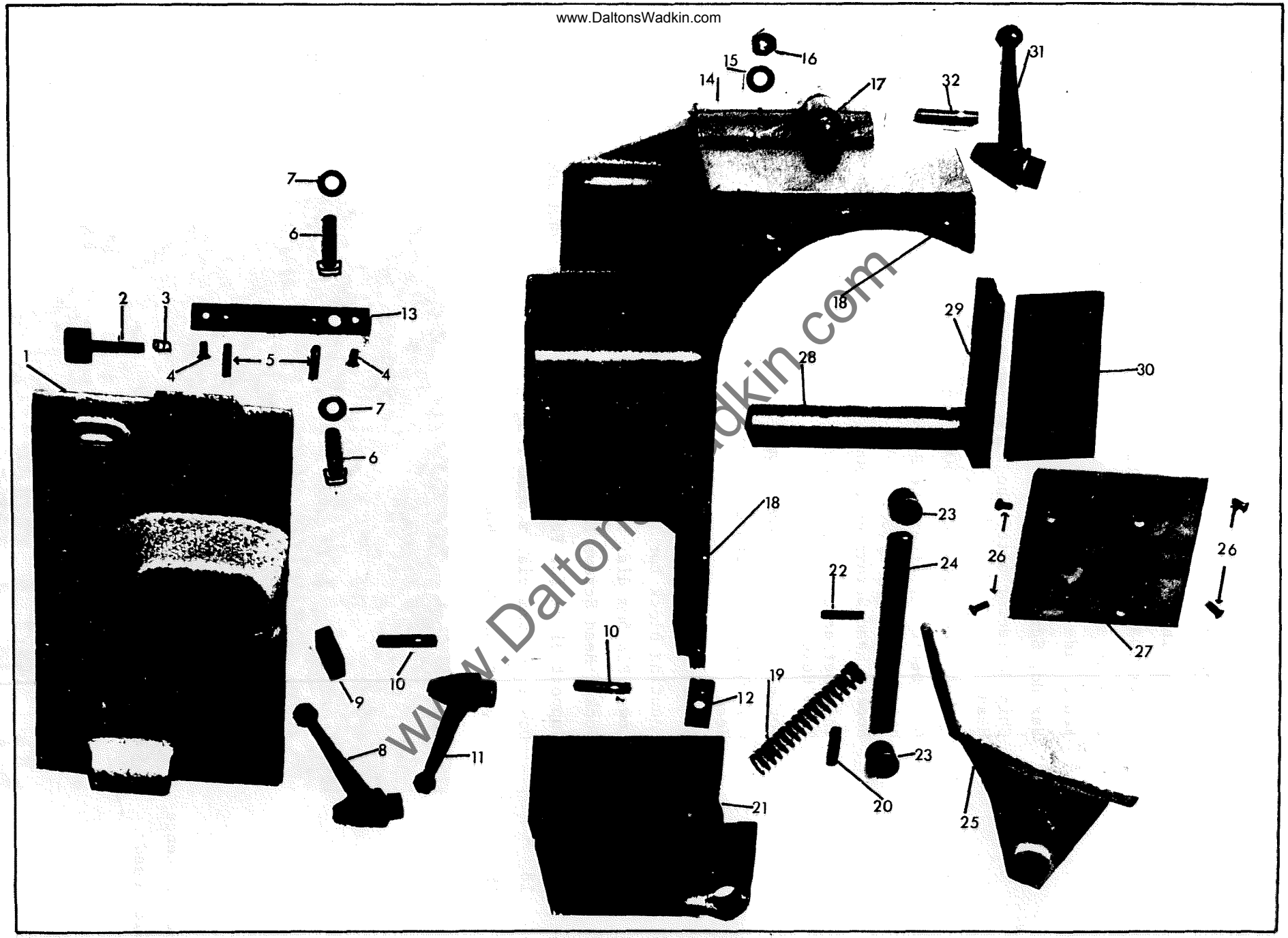
TOP HORIZONTAL HEAD CHIPBREAKER AND PRESSURE LAYOUT
PART NUMBERS 68 - 91



NEAR SIDE VERTICAL HEAD CHIPBREAKER

NEAR SIDE VERTICAL HEAD CHIPBREAKER

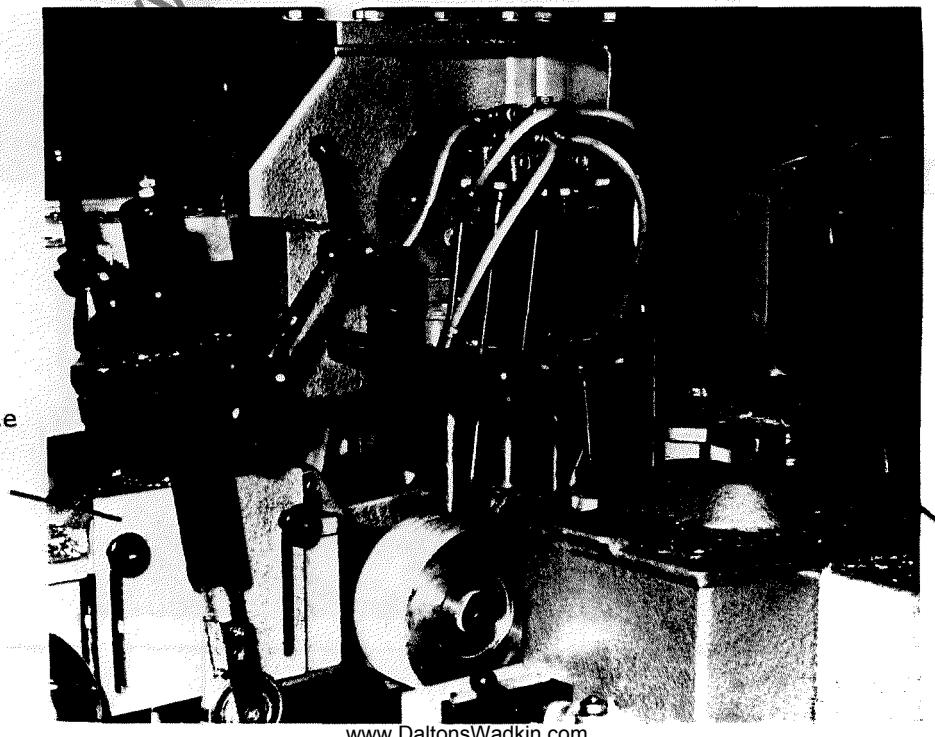
Drg. No.	Description	Part No.
1	Cover for Near Side Head Chipbreaker	GEM 3277
2	Quarter Turn Screw M8	K30 73 128
3	Helicoil Insert	K30 33 133
4	Posidrive C.S.K. Screw M5 x 10mm long	K05 25 316
5	Plain Dowel 5mm dia. x 10mm long	K05 29 115
6	Hex Head Screw M10 x 30mm long	K05 25 533
7	Bright Washer M10	K05 28 104
8	Locking handle	K05 30 301
9	Serrated Clamp	GEM 3357
10	Stud M10 x 45mm long	K05 26 267
11	Locking Handle	K05 30 301
12	Tenon for Pivot Bracket	GEM 3284
13	Tenon for Near Side Chipbreaker	GEM 3127
14	Hood for Near Side Chipbreaker	GEM 3276
15	Bright Washer M10	K05 28 104
16	Nut M10	K05 27 103
17	Stud M10 x 45mm long	K05 26 267
18	Plain Dowel 5mm dia. x 16mm long	K05 29 116
19	Compression Spring	WO 2656
20	Stepped pin	GEM 4058
21 *	Pivot Bracket for Near Side Chipbreaker	GEM 3278
22	Tension Pin 4mm dia. x 32mm long	K05 20 485
23	Self Lubricating Bush dia. 22mm x 16mm bore x25mm long	K05 31 122
24	Pivot Pin for Near Side Head Chipbreaker	GEM 3280
25	Bracket for Near Side Chipbreaker	GEM 3279
26	C.S.K. Screws M6 x 20mm long	K05 25 326
27	Chipbreaker	GEM 3260
28	Guide for Pressure	GEM 3281
29 **	Backing Plate for Pressure Pad (Welded to Part 28)	GEM 3282
30	Plate for Pressure Pad	GEM 3283
31	Locking Handle	K05 30 301
32	Stud M10 x 35mm long	K05 26 265
*21a	Hexagon Head Locknut M10 (not shown)	K05 27 110
**29a	Baffle (not shown) for Part 29	GEM 3779
29b	Hexagon Socket Cap Screws M6 x 12mm long for Part 29a (not shown)	K05 25 164

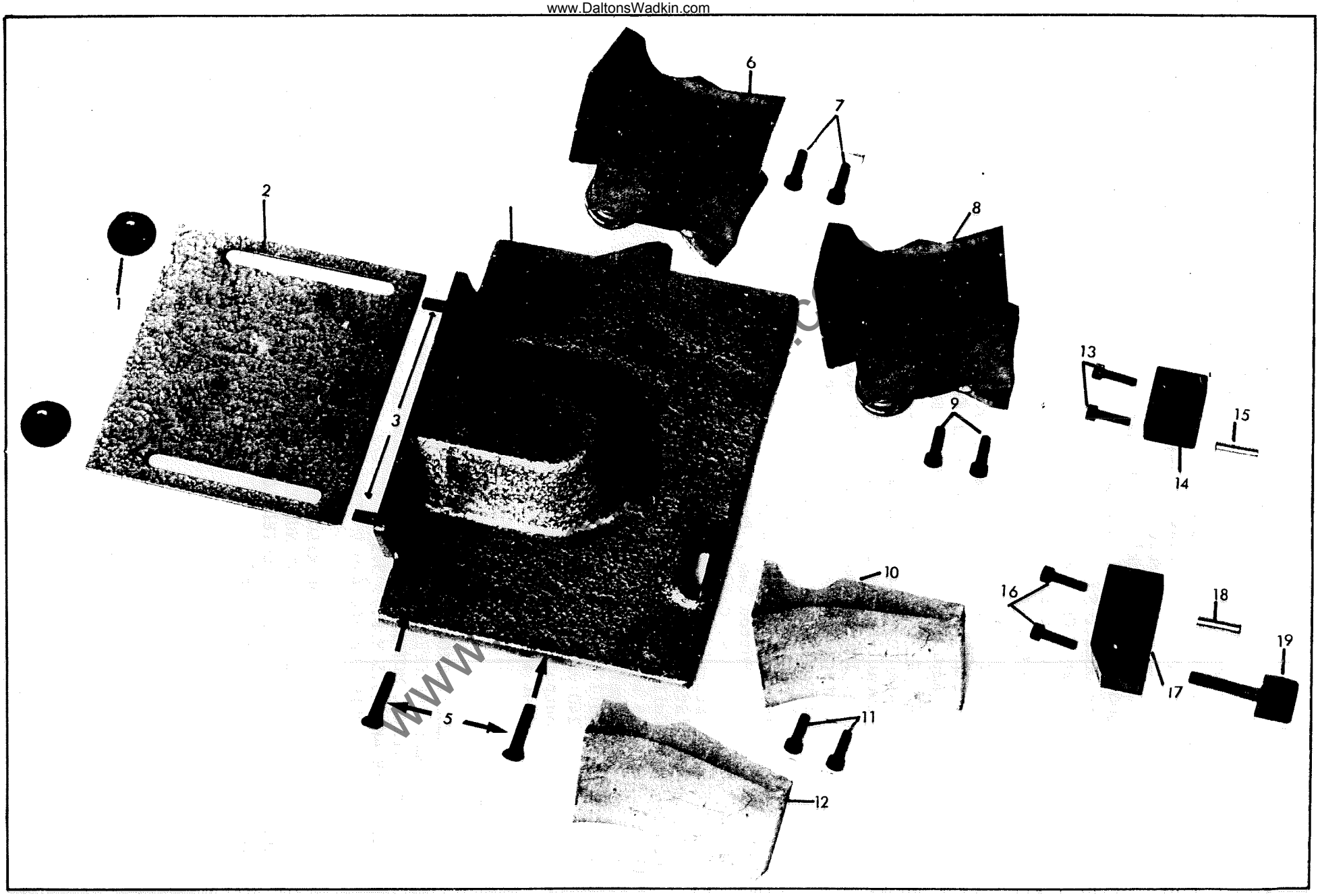


NEAR SIDE VERTICAL HEAD CHIPBREAKER

FENCE SIDE VERTICAL HOOD AND CHIP DEFLECTORS

Drg. No.	Description	Part No.
1	Knurled Thumb Nut NDS 520 - 204	K30 53 137
2	Cutter Guard for Fence Side Head	GEM 3158
3	Studs M8 x 30mm long	KO5 26 235
4	Fence Side Head	GEM 3200
5	Hex Hd. Screws M6 x 30mm long	KO5 25 505
6	Chip Deflector after the First Fence Side Head	GEM 3462
7	Socket Head Screws M6 x 30mm long	KO5 25 168
8	Chip Deflector after the Second Fence Side Head	GEM 3464
9	Socket Head Screws M6 x 30mm long	KO5 25 168
10	Chip Deflector before the Second Fence Side Head	GEM 3463
11	Socket Head Screws M6 x 30mm long	KO5 25 168
12	Chip Deflector before the First Fence Side Head	GEM 3467
13	Socket Head Screws M6 x 30mm long	KO5 25 168
14	Mounting block for Fence Side Head Hood	GEM 3184
15	Dowel Pin 5mm dia. x 30mm long	KO5 29 119
16	Socket Head Screws M6 x 30mm long	KO5 25 168
17	Support Block for Fence Side Head Hood	GEM 3185
18	Dowel Pin 5mm dia. x 30mm long	KO5 29 119
19	Quarter Turn Screw NDS 604 202	K30 73 128





FENCE SIDE VERTICAL HEAD HOOD AND CHIP DEFLECTOR

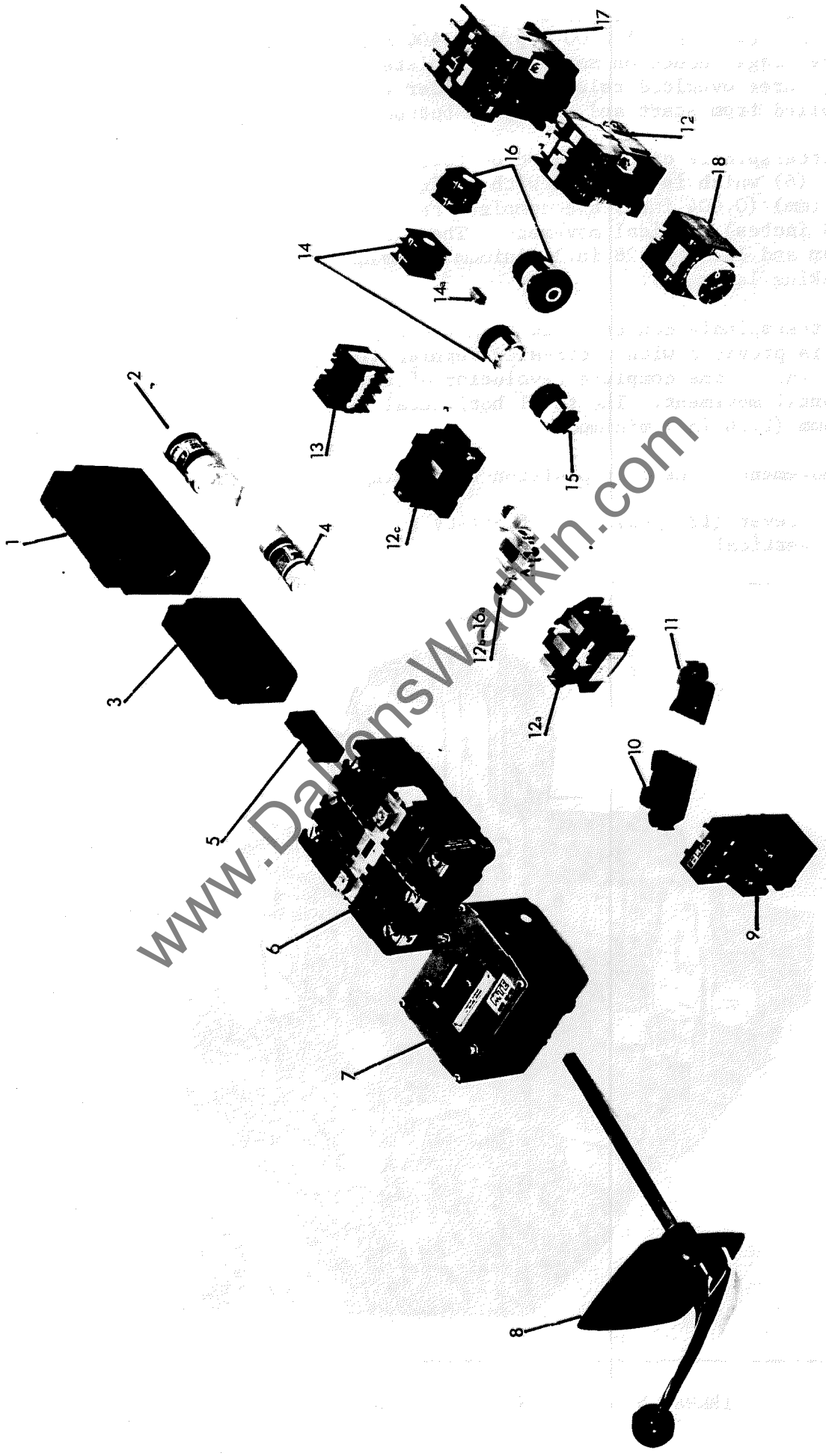
ELECTRICAL CONTROL EQUIPMENT

Drg. No.	Description	Part No.
1	100 amp. H.R.C. Fuse Holder and Base	K12 04 153
2	100 amp. H.R.C. Fuse	K12 04 145
3	30 amp. H.R.C. Fuse Holder and Base	K12 04 151
4	30 amp H.R.C. Fuse	K12 04 139
5	5 amp. 'Slydlock' Fuse Holder and Base	K12 04 156
6	100 amp. Triple Pole Contact Bank for Disconnect Switch	K12 02 155
7	Actuator Unit with Door Interlock for Disconnect Switch	K12 02 156
8	Large Operating Handle for U.C.O. Disconnect Switch	K12 02 158
9	Triple Pole Overload Assembly 7-10 amp.	K12 05 925
10	75 amp. Terminal Block (Rail Fixing Type)	K12 03 153
11	25 amp. Terminal Block (Rail Fixing Type)	K12 03 158
12	12 amp. Triple Pole Contactor	K12 05 900
12a	Contactor Armature Assembly Top (shown for educative purposes only)	
12b	Coil for 12 amp. Contactor 110 volts 50 hertz	K12 05 935
12c	Contactor Armature Assembly Base (shown for educative purposes only)	
13	Clip on Auxiliary Contact Block	K12 05 940
14	Illuminated Push Button	K12 01 210
14a	Push Button Lamp. Bulb 2 watt 110 - 120 volt BA9s Cap	K12 01 190
15	'Start' Push Button Operator	K12 01 118
16	'Stop' Stay put Push Button	K12 01 134
16a	Coil for 16 amp Contactor 110 volts 50 hertz	K12 05 940
17	16 amp. Triple Pole Contactor	K12 05 901
18	Timer 0.1 - 30 seconds (Delay on Energising)	K12 05 911
19	Coil Circuit and Indicator Light Transformer 240 volt-amps/110 volt/50 hertz output - 380/440 volt/50 hertz input. (not illustrated.)	K12 01 101

IMPORTANT

WHILST THE ILLUSTRATIONS OF THE ELECTRICAL COMPONENTS ARE REPRESENTATIVE FOR ALL MODELS IRRESPECTIVE OF THE KILOWATT RATING, VOLTAGE AND FREQUENCY OF THE ELECTRICAL MOTORS, THE 'K' PART NUMBERS ARE ONLY VALID FOR MACHINES FITTED WITH 4KW (5.5 H.P.), 5.5 KW (7.1/2 H.P.) MOTORS OPERATING ON ELECTRICAL SUPPLIES OF 380/440 VOLTS 3 PHASE 50 HERTZ.

WHERE PARTS ARE REQUIRED FOR KILOWATT RATINGS, VOLTAGES AND FREQUENCIES OUTSIDE THESE RANGES, THE PART NUMBER SHOWN ON THE LEGEND PLATE OF THE REQUIRED COMPONENTS MUST BE QUOTED AGAINST THE RESPECTIVE DESCRIPTION GIVEN IN THE ABOVE PARTS LIST.



ELECTRICAL CONTROL EQUIPMENT

THROATING HEAD

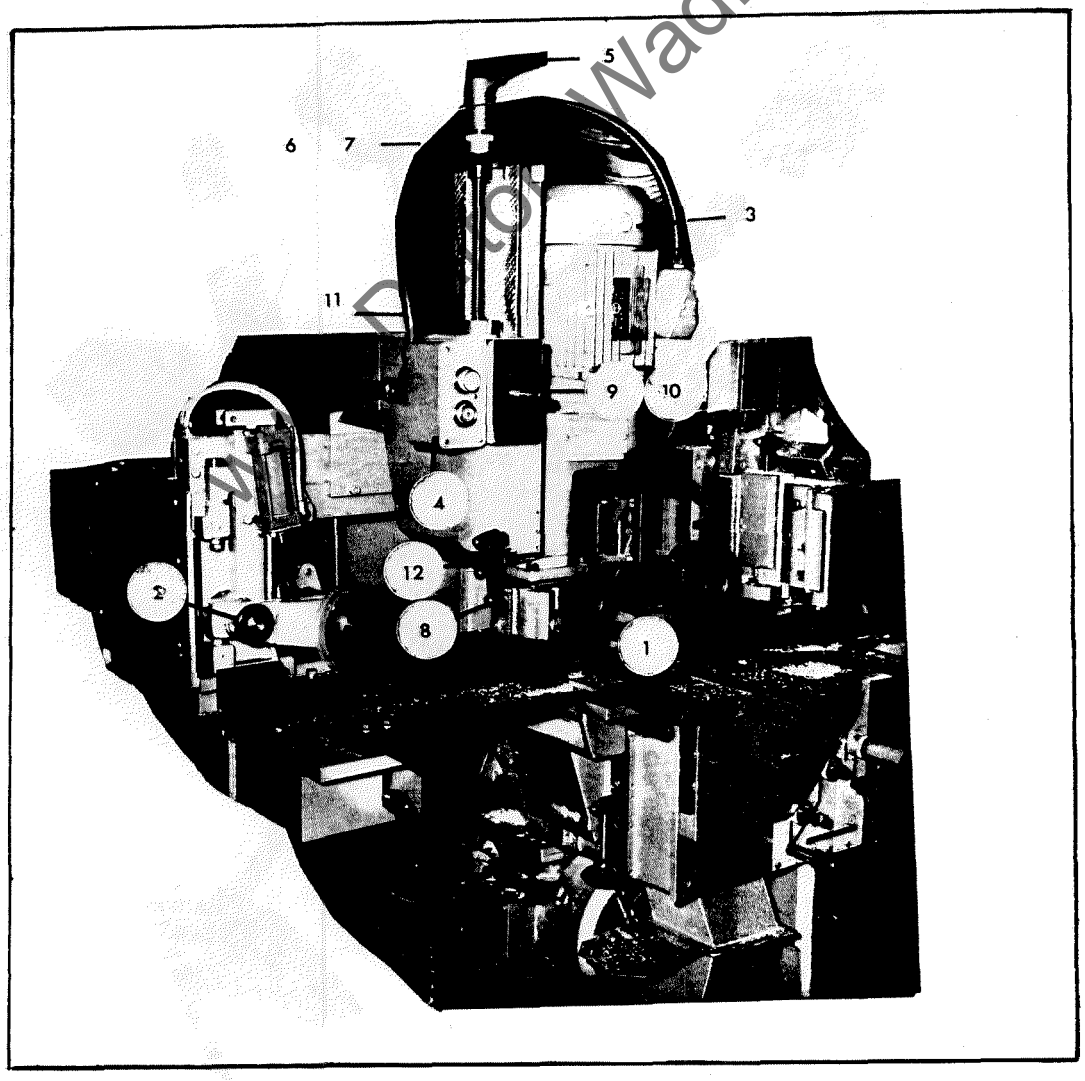
The vertical throating head (1) is fitted at the outfeed end of the machine and is followed by a single pneumatically operated roller pressure (2). It is equipped with a 3.7 kw (5.h.p.) 2800 r.p.m. (3400 r.p.m. when the frequency is 60 hertz) squirrel cage induction motor (3) complete with direct on line contactor starter having three overload releases and under voltage protection independently controlled from start and stop push buttons (4).

The cutterspindle can be raised or lowered by engaging a crank handle (5) on square (6) which is provided with a circular vernier (7) graduated in increments of (0.1mm) (0.004 ins.) one complete revolution of the handle produces 4mm (0.158 inches) vertical movement. The total vertical traverse is 325mm (12.8 in.) maximum and 185mm (7.28 in.) minimum movement. This movement is held in position by locking lever (8).

The cutterspindle can be moved transversely by engaging a crank handle or square (9) which is provided with a circular vernier (10) graduated in increments of 0.1mm (0.004 ins.), one complete revolution of the crank handle produces 4mm (0.158 in.) horizontal movement. The total horizontal traverse is 275mm (10.83in.) maximum and 55mm (2.16 in.) minimum.

This movement is held in position by locking lever (11).

Locking lever (12) provides a facility for canting the cutterspindle fore or aft of the vertical.



THROATING HEAD MINUS CUTTERBLOCK GUARD

OUTBOARD BEARINGS FOR TOP AND BOTTOM HORIZONTAL SPINDLES GEM 170 AND GEM 205

GENERAL ARRANGEMENT DRAWING GEM 10095

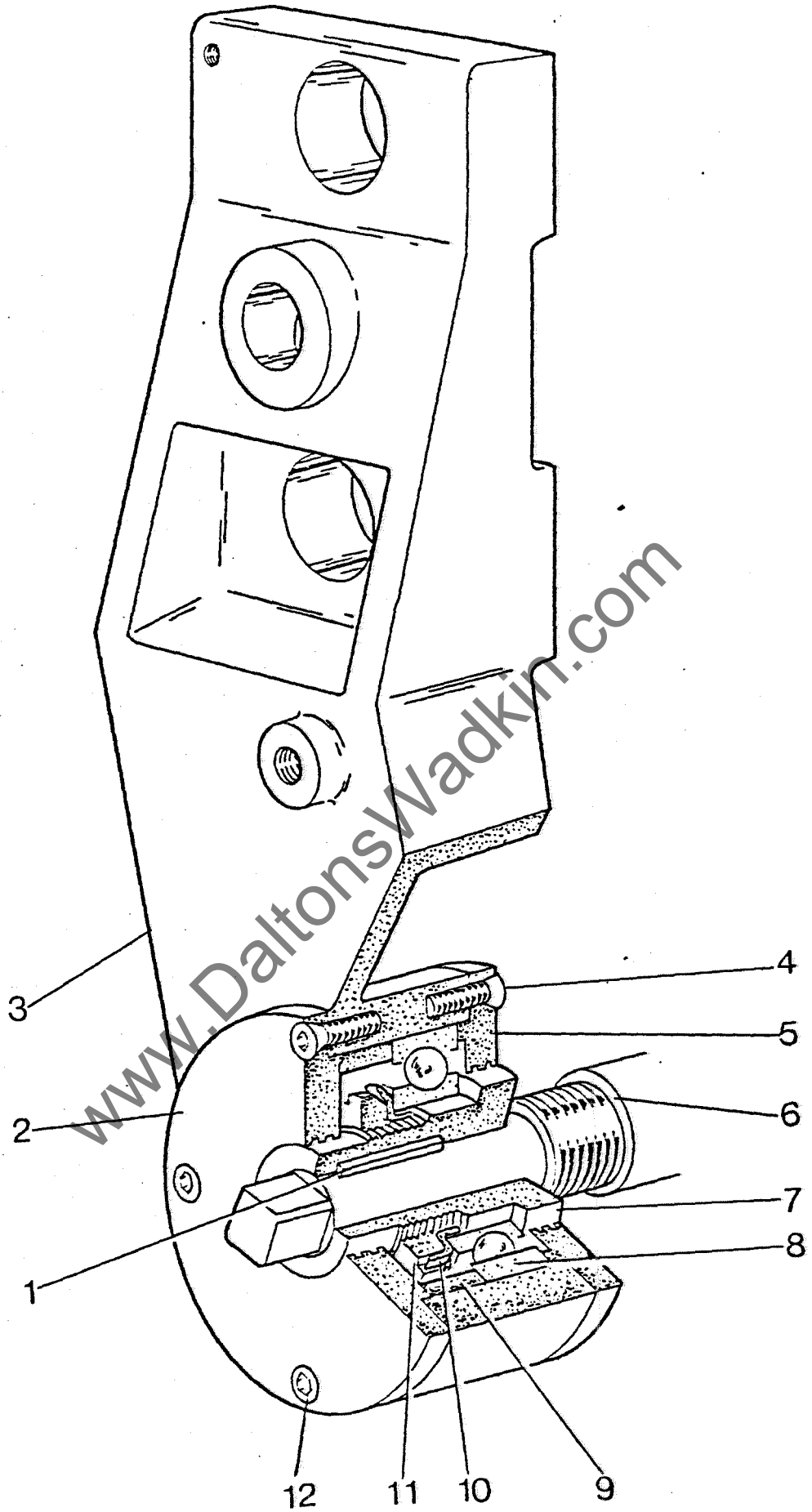
Parts Lists reading the Drawing from Left to Right and in a clockwise direction

Ref No:	Description	Part No:	No.Off
1	Location Bung	GEM 4251	2
2	Quarter Turn Screw WOS.604-203	K30-73-862	1
3	Door for Top Head Chipbreaker	GEM 4239	1
4	'C' Washer	GEM 3903	1
5	Outboard bearing for Top Horizontal Head	GEM 4237	1
6	Cutterblock Spindle 40mm. Dia.	GEM 4248	1
	Cutterblock Spindle 1.13/16in.dia.	GEM 4348	1
7	Slide for Top Head with Outboard Bearing	GEM 4250	1
8	Outer End Cap	GEM 4241	1
9	Bearing Spacer	GEM 4253	1
10	Notch Nut	K05-27-210	1
11	Tab Washer	K05-27-259	1
12	Ball Bearing RHP 6209 TB EP 5	K05-20-106	1
13	Inner End Cap	GEM 4240	1
14	Sleeve (Tufnol)	GEM 4252	1
15	Key for Cutter Spindle	GEM 4507 (was GEM 4255)	1
16	Front Plate	GEM 4277	1
17	Check for Outboard	GEM 4254	1
18	Spindle Housing	GEM 4275	1
19	Bracket for Bottom Head Outboard Bearing	GEM 4245	1
20	Cutterblock Spindle 40mm.dia.	GEM 4249	1
	Cutterblock Spindle 1.13/16in.dia.	GEM 4563	1
21	Outboard Bearing for Bottom Head	GEM 4238	1
22	Door for Bottom Head	GEM 4639 (was GEM 4281)	1
23	Front Plate	GEM 4562 (was GEM 4279)	1

OUTBOARD BEARING FOR TOP HEAD - GEM 170

	REF.NO:	DESCRIPTION	NO:OFF
	1	Key	1
	2	Outer end cap for outboard bearing	1
	3	Outboard bearing for top head	1
	4	M6. x 16mm. long hexagon socket countersunk head screws	4
	5	Outer end cap for outboard bearing with jointer	1
	6	Spindle	1
	7	Sleeve for outboard bearing	1
Ø	8	Ball bearing RHP 6209 TB EP7	1
	9	Bearing spacer	1
	10	Tab lock washer to suit M45 nut	1
	11	M45. x 1.5 pitch chamfered notch nut	1
	12	M6. x 20mm. long hexagon socket countersunk head screws	4

Ø "KLUBER" Grease Packed



OUTBOARD BEARING FOR TOP HEAD GEM 170 & 205