



OPERATING AND MAINTENANCE INSTRUCTIONS

MULTI RIP SAW TYPE B.S.M.

INSTRUCTION BOOK No. B480

IT IS DESIRABLE THAT THIS BOOK BE GIVEN TO THE OPERATOR OF THE MACHINE

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



MULTI RIP SAW TYPE B. S. M.

SPECIFICATION

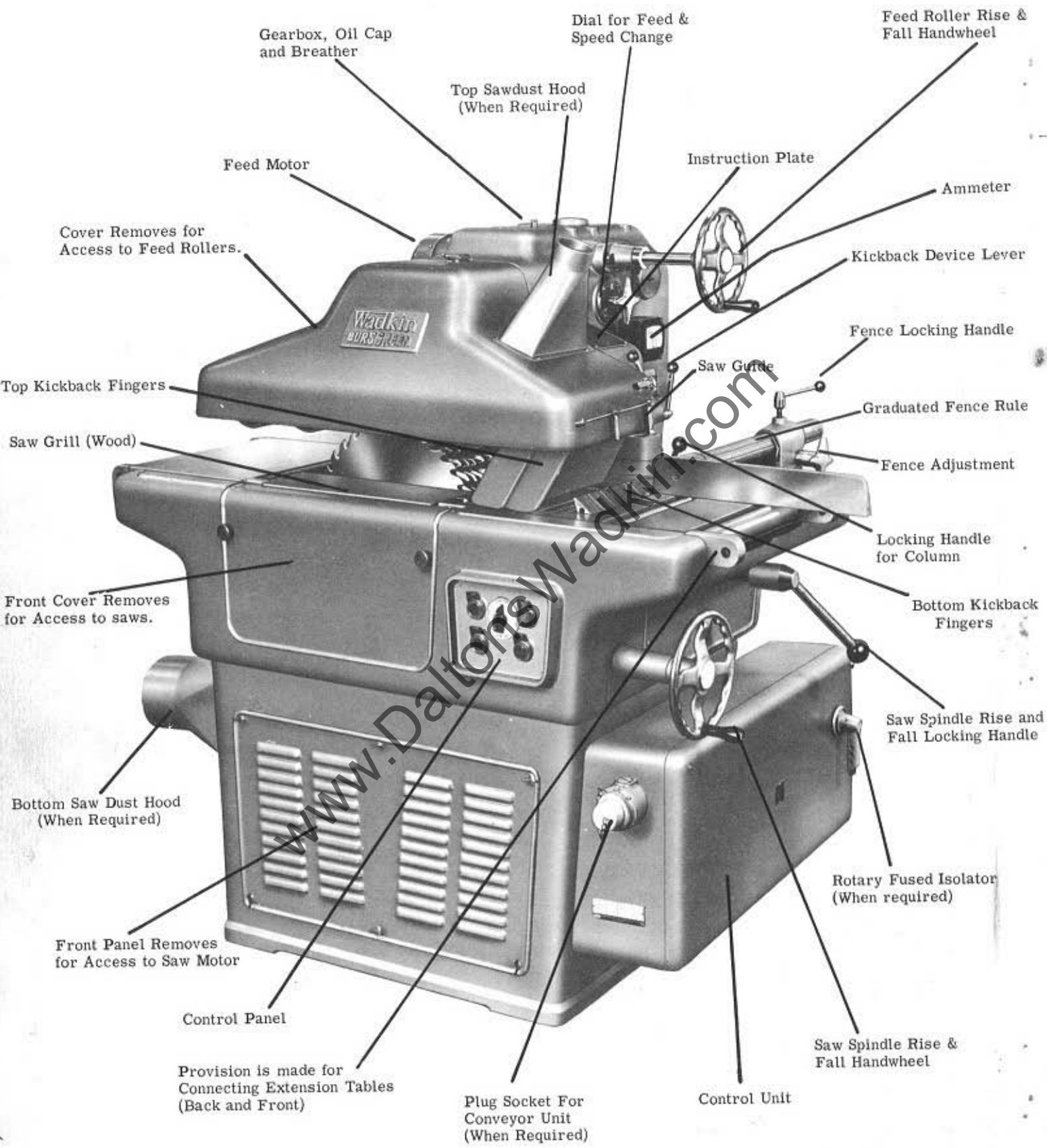
Maximum diameter of saws	16"	410 mm.
Minimum diameter of saws	12"	300 mm.
Maximum saw protrusion (16" saws)	4½"	115 mm.
" " " (14" saws)	3½"	90 mm.
" " " (12" saws)	2½"	65 mm.
Minimum " " (16" saws)	1½"	32 mm.
" " " (14" saws)	¾"	6 mm.
" " " (12" saws)	0"	0 mm.
Maximum number of saws up to 12 depending on depth of cut.		
Horsepower of saw motor	25 (optional 30 or 40)	25 (optional 30 or 40)
Useable length of saw spindle	8½"	205 mm.
Minimum length of cut	12"	305 mm.
Minimum spacing of saws	3/16"	4.7 mm.
Distance between first saw and fence	12"	300 mm.
Diameter of saw spindle (not saw bore)	1¾"	
Saw bore	2½"	64 mm.
Saw spindle speed (50 and 60 cycles)	3000 r. p. m.	3000 r. p. m.
Rise and fall of saw spindle	3¼"	82 mm.
Height of feed table	35"	890 mm.
Feed speeds per minute (50 cycles)	15, 30, 45, 65, 90 & 130 ft.	4.6, 9, 13.7, 20, 27.4 & 39.6m.
Feed speeds per minute (60 cycles)	18, 36, 54, 78, 108 & 156 ft.	
Feed Roller adjustment	5"	127 mm.
Feed roller diameter	5"	127 mm.
Feed motor horsepower	1½"	1.5
Nett weight approx.	2800 lb.	1270 Kg.
Shipping dimensions	69 cu. ft.	1.9 m ³

Details included with the machine.

Main and feed motors, control gear including ammeter and internal wiring. Two wide rubber feed rollers, four narrow rubber feed rollers, two toothed feed sprockets, two feed roller sleeves, one saw sleeve with nut and loose flange. One grill and setting up handle. Fence. Set of wrenches, one grease gun, one oil can, one tub of ball bearing grease.

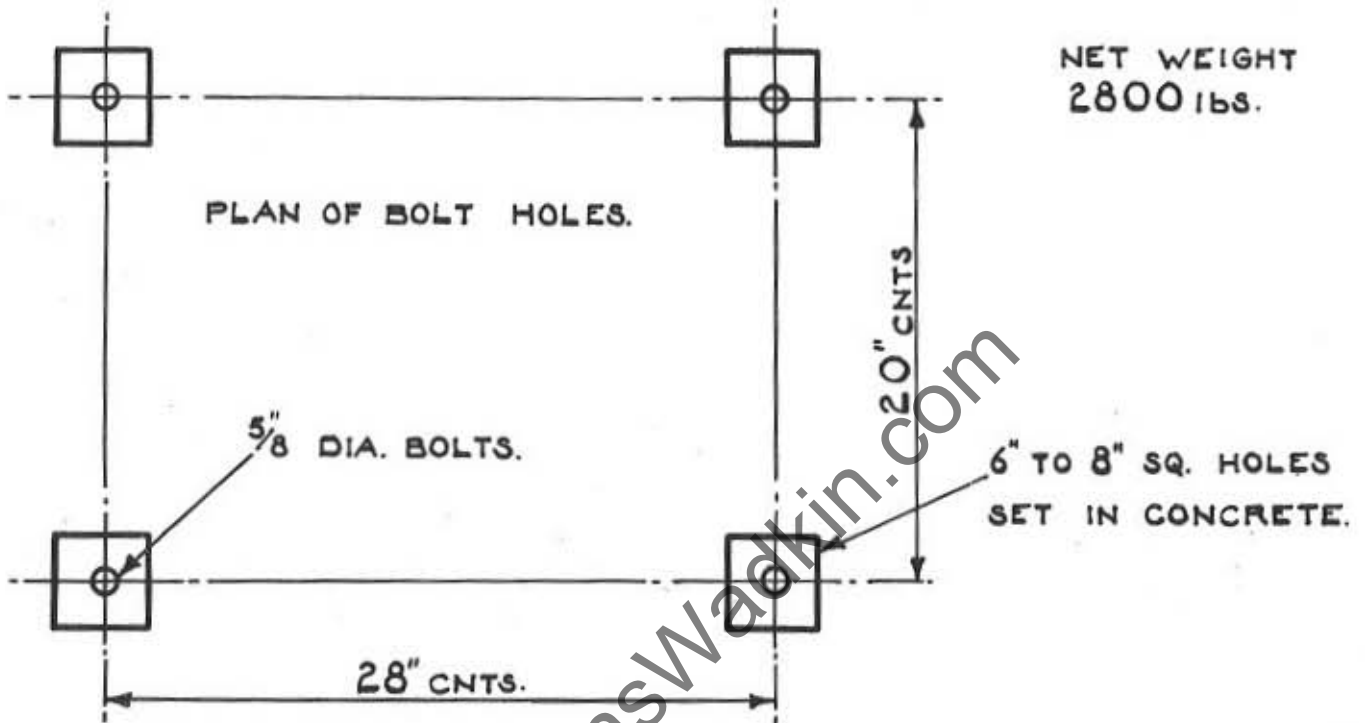
Optional extras.

30 or 40 h. p. saw motors. Rotary isolators. Spare saw and feed sleeves. Spare toothed feed sprockets. Spare wide and narrow rubber feed rollers. Fluted steel feed rollers. Spare saw grills. Back and front extension table rollers. Return feed conveyors. Dust extraction equipment. Saws and spacing collars.



INSTALLATION

Remove loose parts that may be packed in saw compartment and clean protective coating from bright parts with cloth soaked in paraffin, turpentine or other solvent. Level table surface by packing under main base (see foundation drawing for bolt positions).



Wiring details:-

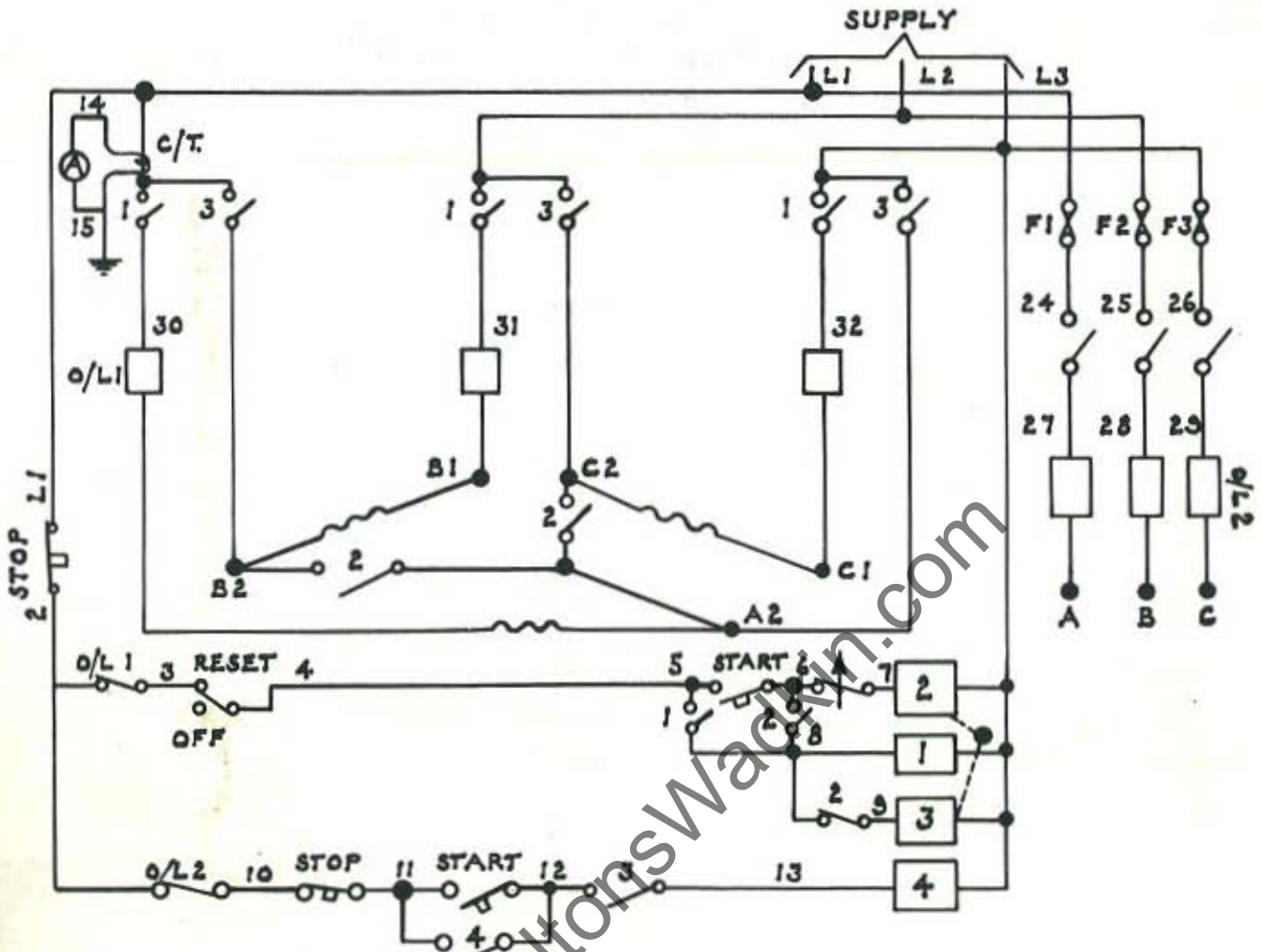
The motor and control gear have been wired in before despatch. All that is required is to connect the power supply to the starter or isolator if fitted.

Points to note when connecting to power supply:-

1. Check the voltage, phase and frequency with those on the machine plate.
2. It is important that the correct cable is used to give the correct voltage to the starter as running on low voltage will damage the motor.
3. Check the main line fuses are of the correct capacity.
4. Connect the line leads to the appropriate terminals (see wiring diagram).
5. Check all connections are sound.
6. Fill overload dash pots to correct level with oil supplied (see wiring diagram for overload settings).
7. Remove saw sleeve and collars if fitted and check that spindle rotates clockwise if this is incorrect reverse any two of the line lead connections.

It is essential that the machine is connected to a dust collecting system. The machine has two built-in outlet points, one above the saws and one below. Both provide easy adaption. The bottom or main outlet measures 11" x 6" and can be supplied with a fabricated steel oblong to round connection to suit 6" dia. pipe or hose. Similarly the top outlet 8" x 4" can be supplied with a connection to suit 4" dia. pipe or hose.

STAR DELTA WIRING DIAGRAM

**FAILURE TO START.**

- (1) Electrical supply is not available at the machine.
- (2) Fuses have blown or have not been fitted.
- (3) Isolating switch has not been closed.
- (4) Lock off or stop button has not been released.

STOPPAGE DURING OPERATION AND FAILURE TO RESTART.

- (1) Fuses have blown.
- (2) Overloads have tripped. They will reset automatically after a short time, and the machine can be restarted in the usual manner.
- (3) Shortage of oil in dash pots

GENERAL.

Check the earth connection from time to time. Users are recommended to display in an appropriate position in the maintenance department Wadkin Electrical Maintenance Instruction Card, No. 356, which is issued gratis on application.

LUBRICATION

The feed gear box, saw spindle bearing, motor and slides, are all lubricated before despatch. It is advisable to clean out sawdust from inside the base each week, and lubricate all points as recommended below.

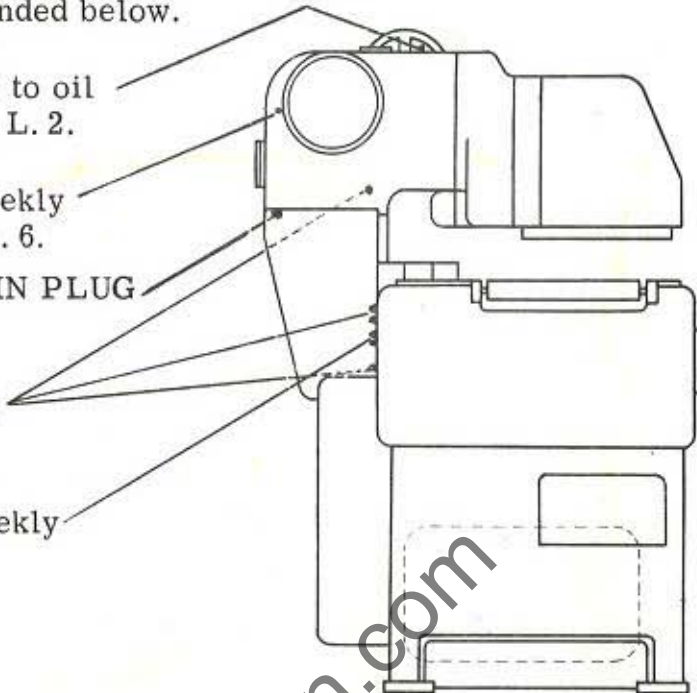
B. Check monthly and fill to oil level using Wadkin oil L. 2.

C. One shot of grease weekly using Wadkin Grade L. 6.

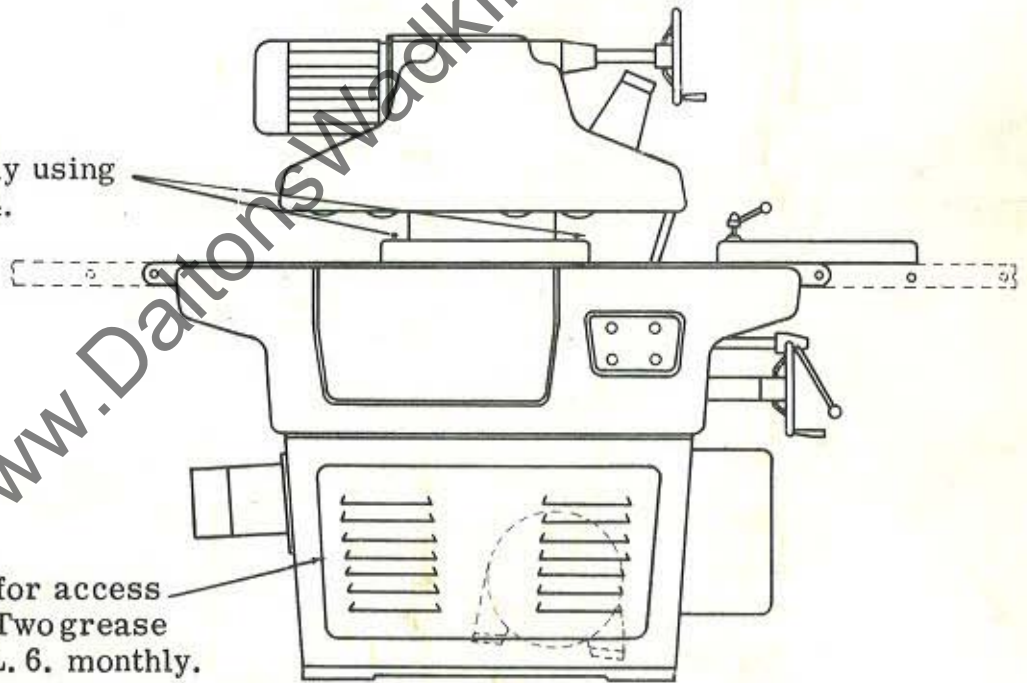
OIL DRAIN PLUG

A. One shot weekly using Wadkin oil L. 4.

C. One shot of grease weekly using Wadkin L. 6.



A. One shot weekly using Wadkin oil L. 4.



C. Remove cover for access to Saw Motor. Two grease points one shot L. 6. monthly.

WADKIN OILS & GREASES WITH RECOMMENDED ALTERNATIVES

Wadkin Grade	Castrol Equivalent	Mobil Oil Co. Equivalent	Shell Equivalent	Regent/Caltex/Texaco
L. 2	Alpha 417	Mobil Dte Oil BB	Vitrea Oil 69	Meropa 2
L. 4	Perfecto NN	Mobil Vactra Oil Heavy Medium	Vitrea Oil 33	Ursa P. 20
L. 6	Spheerol AP3	Mobilux Grease No. 3.	Alvania Grease No. 3.	Regal/Starfak Premium 3

SAWS (ALLOY) FOR HARD AND SOFT WOODS,
SUPER BALANCED WITH .015" TOOTH SET EACH SIDE.

Dia.	BWG.	No. of teeth.	Max. Depth of cut.	Kerf width.	Part No.
12"	15	30	2 1/2"	.102"	BC 4
12"	14	30	2 1/2"	.113"	BC 1
14"	14	34	3 1/2"	.113"	BC 2
14"	13	34	3 1/2"	.125"	BC 3
16"	13	36	4"	.125"	BC 6
16"	12	36	4 1/2"	.139"	BC 5

NOTE :- BC 2, BC 4 and BC 6 are for light duty only.

SAWS (T. C. T.) FOR HARD AND SOFT WOODS
SUPER BALANCED WITH .012" TOOTH OVERHANG EACH SIDE.

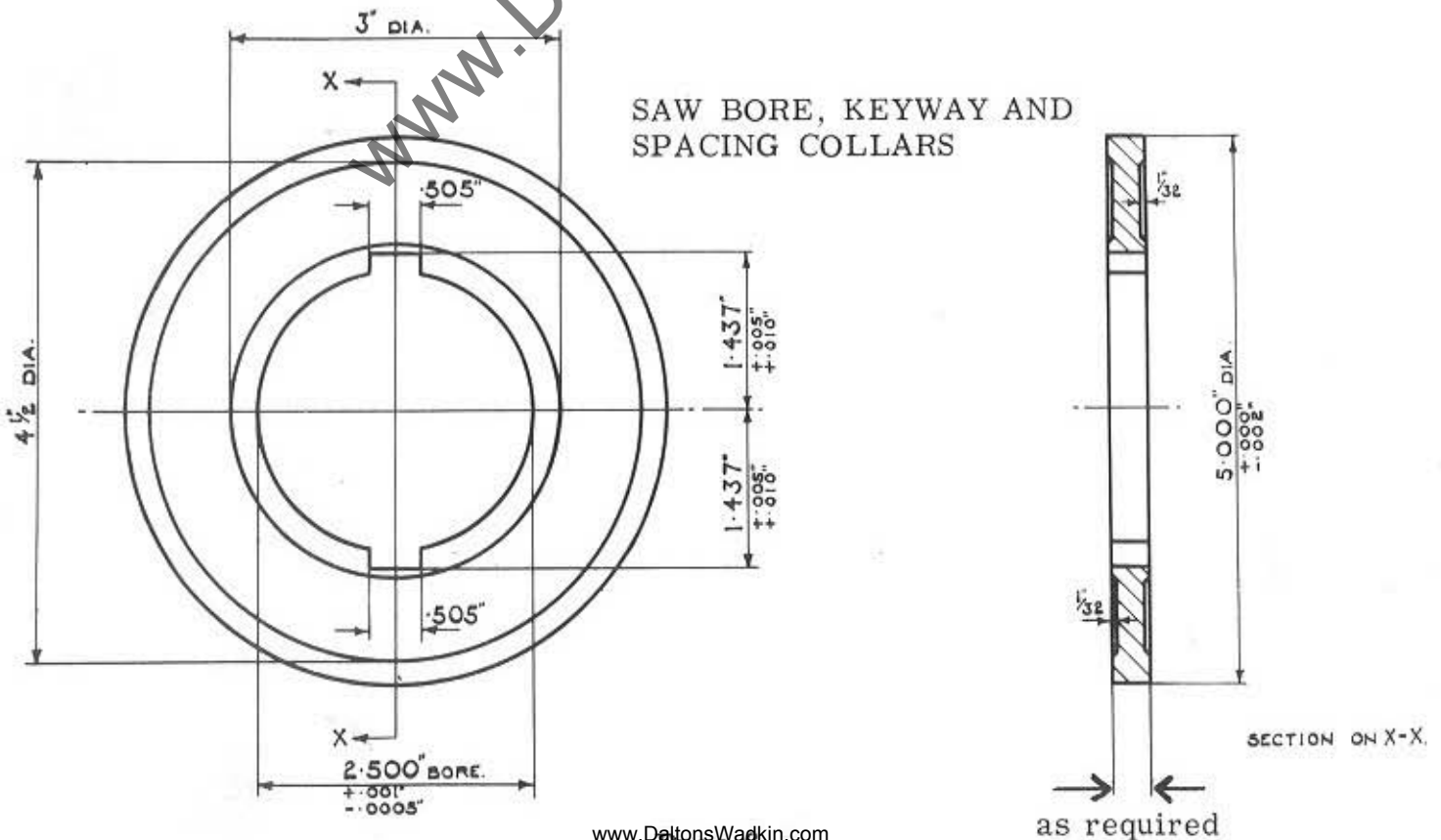
Dia	Max. Feed Speed	No. of teeth	Max. depth of cut	Kerf width	Part No.
12"	90 Ft/min.	48	1 1/2"	.086"	BC 120

SAWS (T. C. T) AS ABOVE BUT WITH .018" OVERHANG EACH SIDE.

Dia.	Max. Feed Speed	No. of teeth	Max. depth of cut	Kerf width	Part No.
12"	150 ft/min.	24	2 1/2"	.122"	BC 100
14"	150 ft/min.	28	3 1/2"	.134"	BC 101
16"	150 ft/min.	32	4 1/2"	.157"	BC 102

SAW (T. C. T) FOR WALL BOARD, CHIPBOARD, PLYWOOD AND ACRYLIC MATERIALS, SUPER BALANCED WITH .018" OVERHANG EACH SIDE.

Dia.	Max. Feed Speed	No. of teeth	Max. depth of cut	Kerf width	Part No.
12"	45 ft/min.	48	1"	.122"	BC 110



SELECTING THE NUMBER OF SAWS

The number of saws that can be used is governed by the h. p. of the saw motor, depth of cut, feed speed, and class of timber. To establish how many saws can be used, first decide on the feed speed, that will enable the operator to maintain continuous feeding with lengths butting up to each other. Suitable feed speeds for 1-2ft. lengths would be 15/30 feet per minute, 2-4ft. lengths 30/65 per minute - larger lengths 65/130 feet per minute. Assuming a feed speed of 30 feet per minute, material 3" thick hardboard, and a saw motor of 25 h. p., reference to table No. 1 gives 4 saws taking 9 h. p. for each 1" of cut $3 \times 9 = 27$ h. p. for the 3" depth of cut with a machine fitted with 30 h. p. the maximum number of saws would be 4.

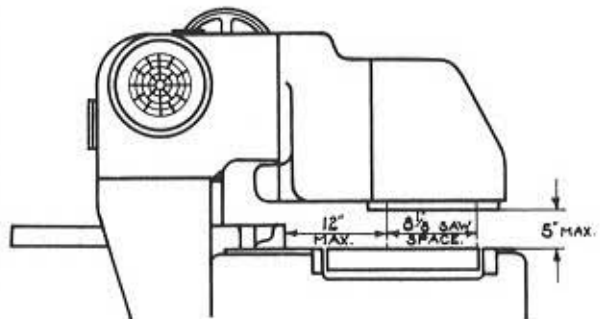
TABLE 1

H. P. requirements for cutting 1" deep lumber for other thicknesses multiply the figure by the thickness. (For general guidance only).

No. of Saws	FEED IN FT/MIN					
	15	30	45	65	90	130
1	1 1/4 hp	2 1/4	3	4	5 1/4	7 1/2
2	2 1/2	4 1/2	6	8	10 1/2	15
3	4	7	9	12	16	23
4	6	9	12	16	22	30
5	7	11	14	19	27	38
6	8 1/2	13	17	24	33	
7	10	15	21	27	37	
8	12	18	24	32		
9	13	20	27	35		
10	15	24	32			
11	16	28	37			
12	18	32				

TABLE 3.
MAXIMUM WIDTH AND NUMBER OF SAWS ACCOMODATED IN ONE GANG.

No. of Saws	Alloy Saws with .015" tooth set each side.			
	Type 12" B. C. 4, 15 B. W. G.	Type 12" & 14" B. C. 1 & 2, 14 B. W. G.	Type B. C. 3 & 6, 13 B. W. G.	Type B. C. 5, 12 B. W. G.
1.	20"	20"	20"	20"
2.	7. 15/16"	7. 15/16"	7. 7/8"	7. 7/8"
3.	3. 15/16"	3. 7/8"	3. 7/8"	3. 13/16"
4.	2. 9/16"	2. 9/16"	2. 1/2"	2. 1/2"
5.	1. 15/16"	1. 7/8"	1. 7/8"	1. 13/16"
6.	1. 1/2"	1. 7/16"	1. 7/16"	1. 7/16"
7.	1. 1/4"	1. 3/16"	1. 3/16"	1. 3/16"
8.	1. 1/16"	1"	1"	1"
9.	7/8"	7/8"	7/8"	13/16"
10.	3/4"	3/4"	3/4"	3/4"
11.	11/16"	11/16"	5/8"	5/8"
12.	5/8"	9/16"	9/16"	9/16"



(similar applies for T. C. T. saws)

NOTE:- 20" WIDTH IS WITH THE SAW MOUNTED ON THE OUTSIDE END OF THE SPINDLE (i. e. DISTANCE BETWEEN FENCE AND FIRST SAW PLUS AVAILABLE SAW SPACE).

SPACING COLLARS

The following spacing collars are available, one range (lettered) allowing for set in saws and one range (numbered) with widths exactly as listed.

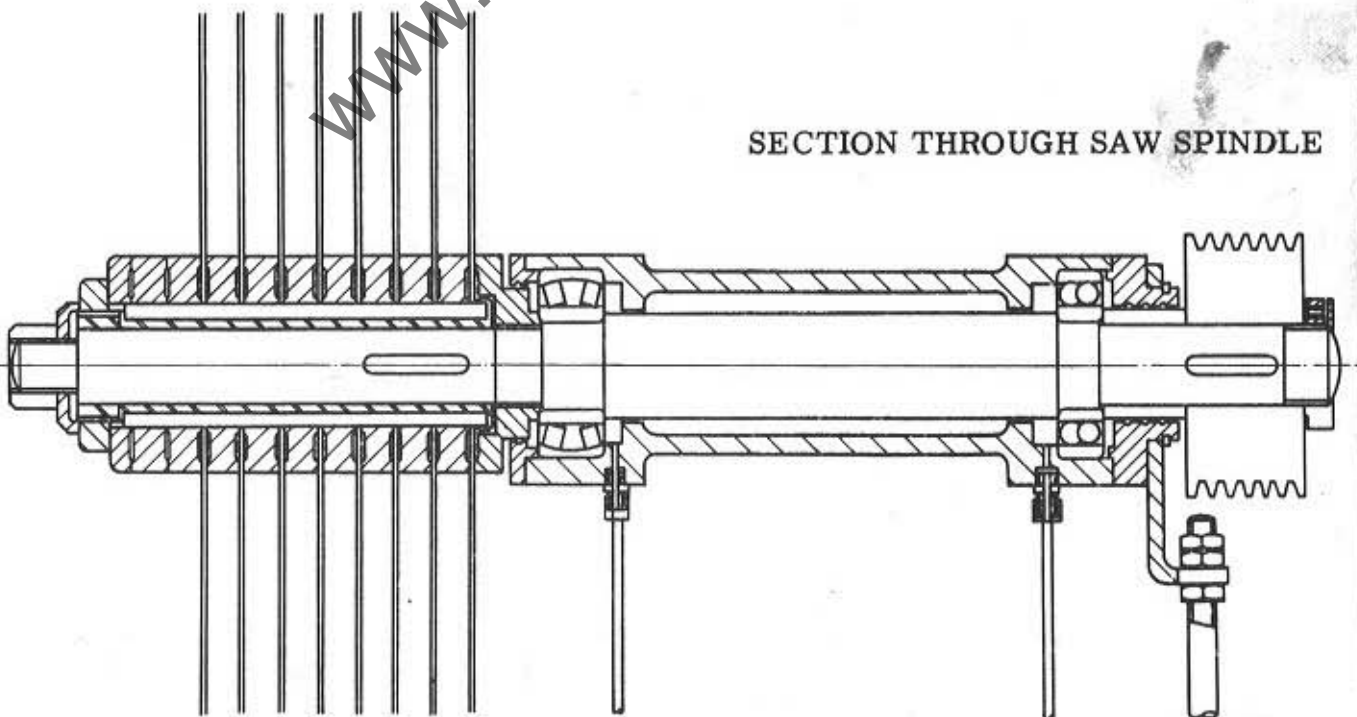
Width allowing for set	3/16"	1/4"	5/16"	3/8"
For use with 12" - 16" alloy saws type BC 1/6 with .015" set each side.	A	B	C	D
For use with 12", 14" & 16" BC 100/101/102 TCT saws with .018" set each side.	E	F	G	H
For use with 12" diam. type BC 120 T. C. T. saws with .012" set each side.	I	J	K	L

The following spacing collars, numbered for identification are for use with the above to make up the required width between saws.

Width	1/4"	1/2"	3/4"	1"	2"	3"	4"
No.	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7

If exact sawn widths are required care must be taken to use the correct combination of collars and saws. For example:- Assume that it is required to produce $1\frac{1}{4}$ " wide pieces with five 14" diam. saws type BC 3 with .015" set each side. Reference to above list shows that a letter B ($\frac{1}{4}$ ") collar plus a No. 4 (1") collar will produce a $1\frac{1}{4}$ " width. The set of five saws will thus need eight collars, comprising four letter B and four No. 4. If $5\frac{1}{16}$ " width is required with same type of saw this would need a C collar ($\frac{5}{16}$ ") plus numbered collars 3 ($\frac{3}{4}$ ") and 7 (4") totalling $5\frac{1}{16}$ ". In addition making up collars will be required to fill the saw space on the spindle to enable the set to be locked onto the spindle.

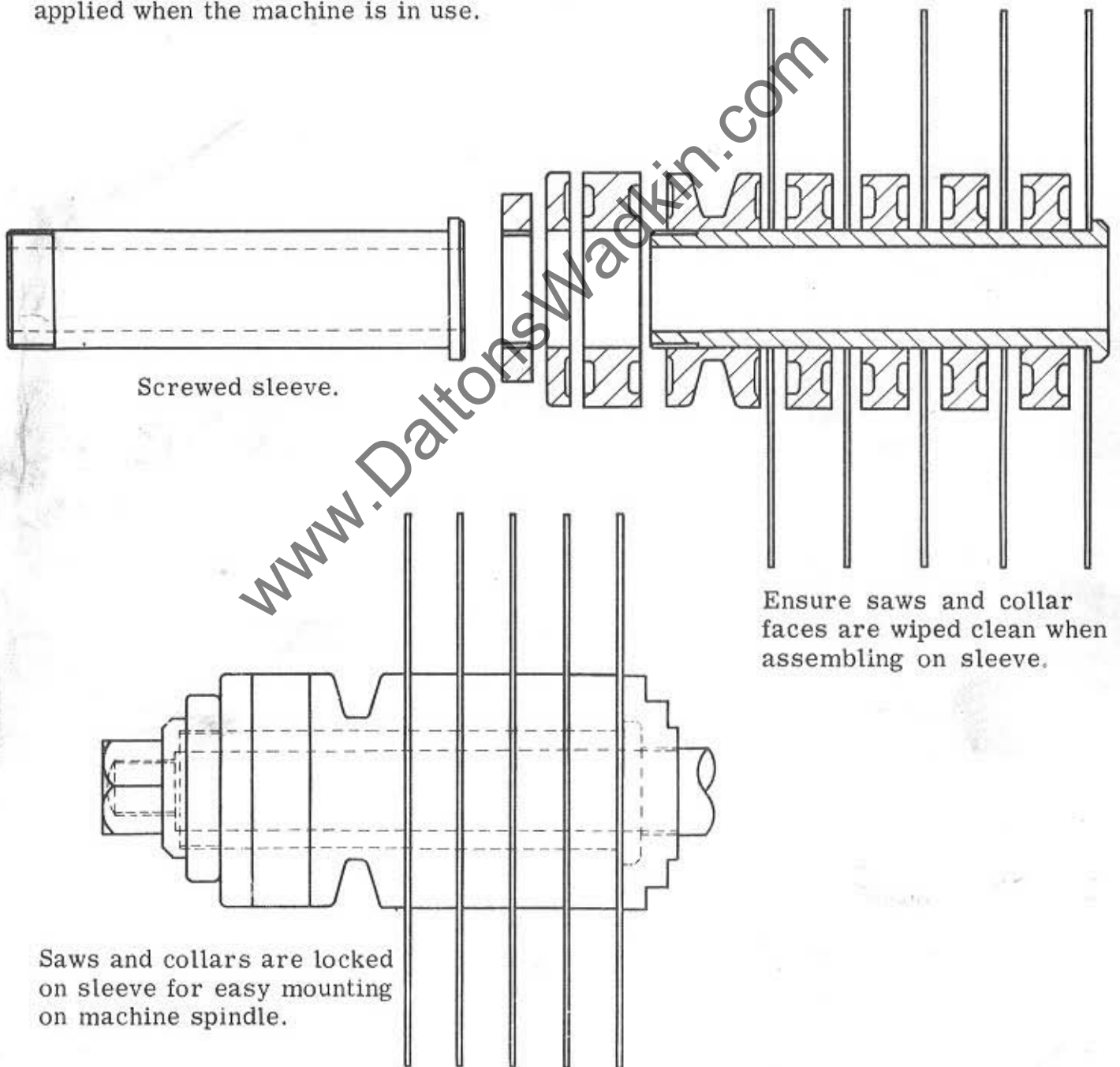
SECTION THROUGH SAW SPINDLE

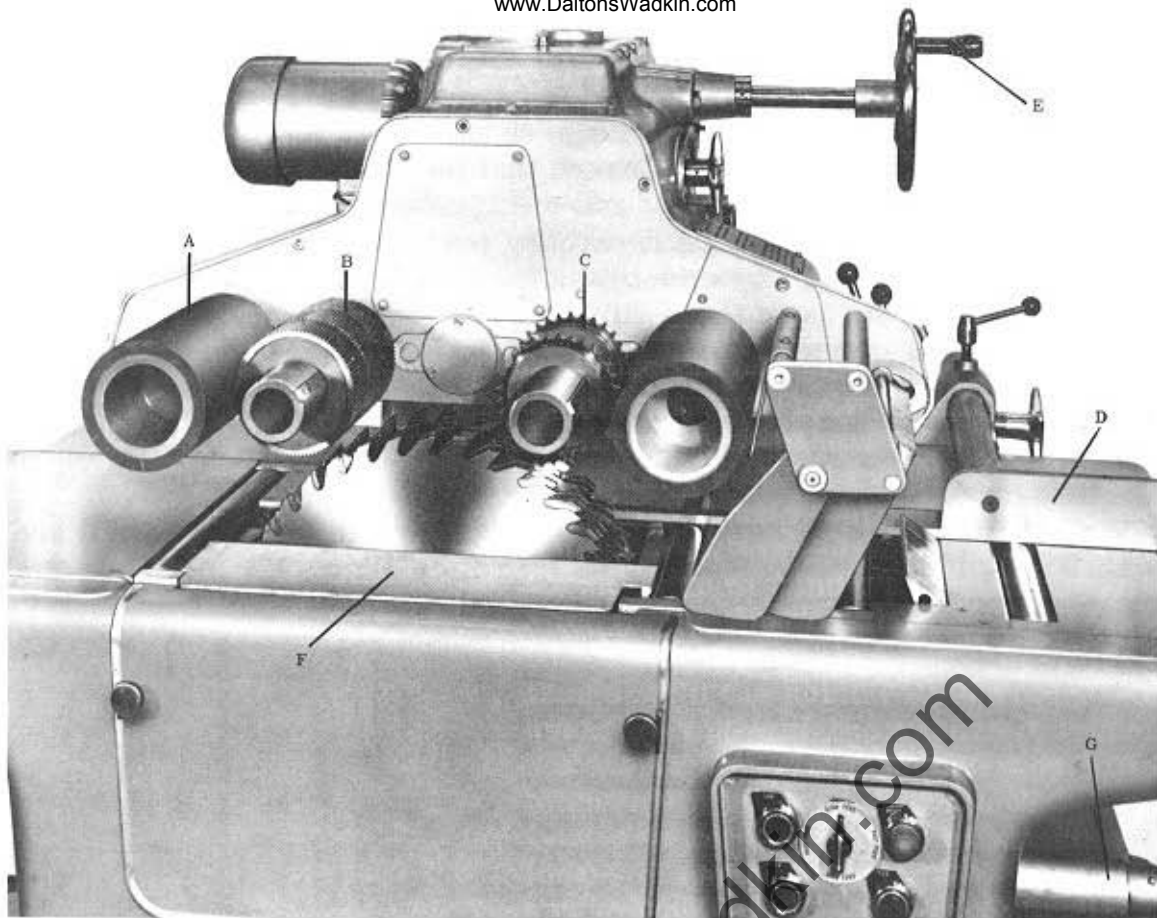


FITTING SAWS

The saw spindle is provided with a sleeve to permit the saws to be assembled or removed in one gang. When loading the sleeve with saws and spacing collars particular attention must be taken to ensure that the saw blade sides and the mating collar faces are wiped clean from grit and dust. When the required number of saws and spaces have been assembled the remaining portion of the sleeve will have to be made up with collars so that when the brass nut is locked up ('C' spanner provided) the outside face of the nut is flush or slightly proud of the screwed sleeve face. Saw maintenance is of utmost importance and should only be done by a qualified person. All saws supplied by us are the best quality and super-balanced to ensure vibrationless running. Equal set on each tooth and both sides of the saw is also very important.

THE SAW SPINDLE is of nickel chrome steel mounted in heavy type ball and roller bearings. The spindle housing is mounted in a slide giving $3\frac{1}{4}$ " of rise and fall movement operated through gears and screw by handwheel. The ball lever lock must be applied when the machine is in use.



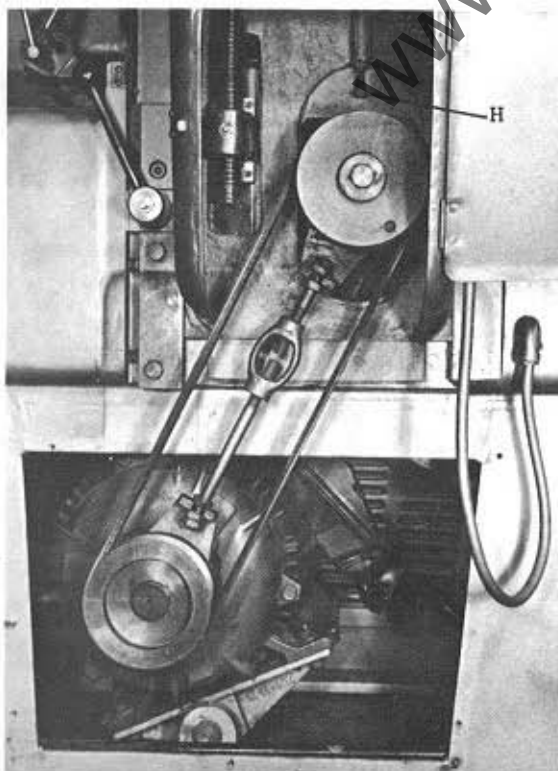


When fitting the gang of saws onto the machine proceed as follows;-

1. Isolate electrics and remove the saw and feed roller covers.
2. Remove the two centre and outfeed rollers with the hexagon wrench provided (A, B & C).
3. Move the rip fence clear of the saw opening. (D)
4. Raise the saw spindle and feed roller units into their top positions by use of the handwheels (E) & (G). An adjustable stop (H) described later arranged between these units is fitted to prevent the saws and feed roller coming into contact with each other. The stop is adjustable

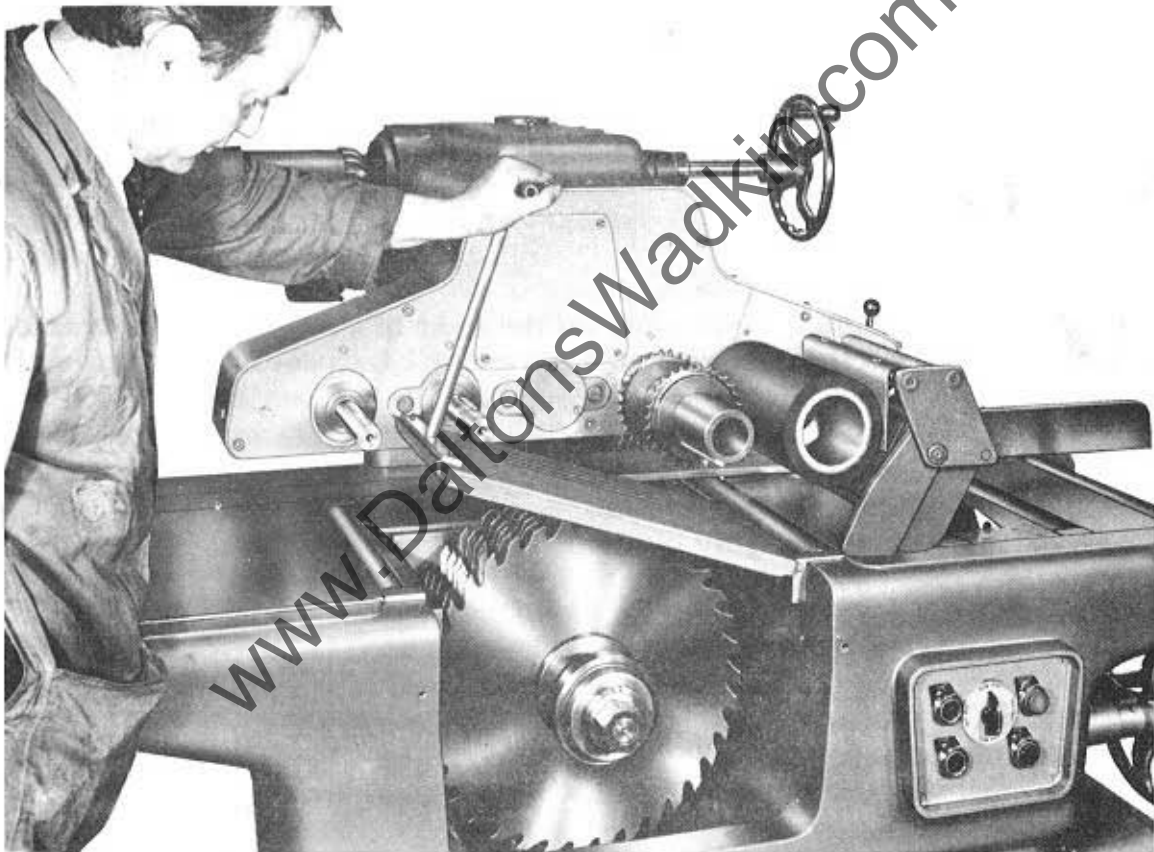
to cater for different diameter saws (i. e. 12" to 16"). Because of this stop it is not possible to raise these units into their extreme positions without making adjustments to one and then the other in turn.

5. Remove the saw grill (F) secured by counter-sunk screws with the wrench provided and note when only the left hand screws are removed the grill hinges upwards from the right hand side.
6. Clean the saw spindle and fixed flange face. Slide on the gang of saws ensuring that the first saw is properly located up to the fixed flange. Fit the spindle washer and hexagon nut. Lock up with the wrench provided. Do not overtighten. Rotate the spindle by hand to ensure it is free and the saws run true.
7. Lower saws into their bottom position by means of handwheel (G) (12" saws will disappear approx. $\frac{3}{4}$ " below table level). Keeping the roller feed unit as high as possible.



FITTING SAWS (Continued)

8. If 12" dia saws are being used re-secure the saw grill ensuring that it is level with back steel plate and parallel with the table rollers. If one corner or a portion is above this will not allow the work to feed in a straight line. Check that the saws are free to rotate and start up by pressing the saw start button. Gently raise the saws through the grill to the desired height. Alloy saws about $\frac{1}{2}$ " to $\frac{5}{8}$ " above timber thickness and $\frac{1}{8}$ " to $\frac{1}{4}$ " for T. C. T. Stop the machine by pressing the master lock-off button.
9. If 14" or 16" dia. saws are used re-secure the grill at right hand side only. At the left hand side secure the setting up handle provided to the top face of the grill using the countersunk screws from the underside. This will allow you to hold the grill clear of the saws as shown below. Start up and gently lower the grill down onto the saws until level with the table. Stop the saws, remove handle and secure the grill ensuring that the saws are free to rotate. Start up again, raise saws to desired height and stop machine.



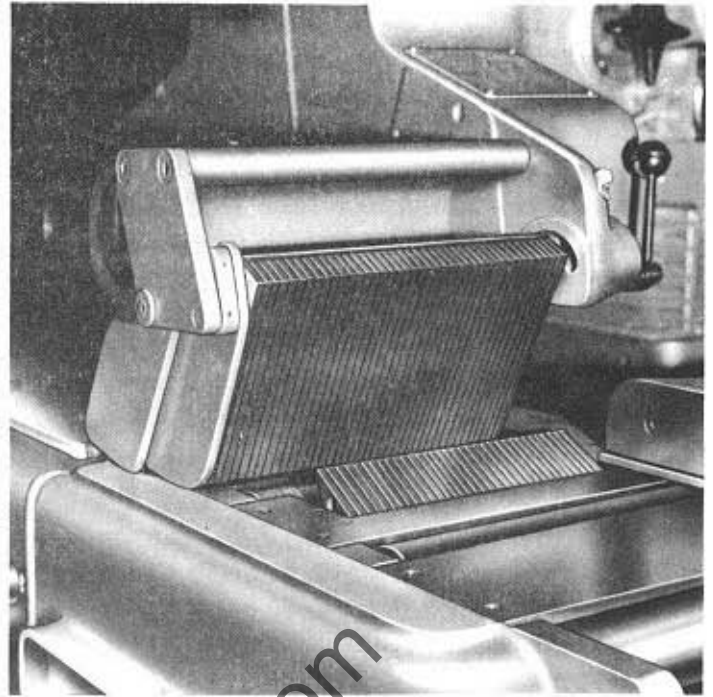
10. Replace the feed rollers and set the sprockets on roller (C) in line with the saws so that indentations made on the timber are removed by the saw kerf and lower the feed so that the rollers clear the saws by $\frac{1}{4}$ " to $\frac{1}{2}$ ". Finally set the adjustable stop (H) previously mentioned. This is a hexagon head bolt screwed into the slide column that supports the feed unit. It is situated above the saw spindle pulley and is accessible through the hinged door on the slide column. With the 5/16" wrench provided loosen the locknut and adjust the bolt head until it comes into contact with the flat on the saw spindle housing. Lock in this position by tightening the locknut. The machine is now ready for use.

Kick Back Mechanism.

This consists of steel fingers mounted in front of the saws to prevent splinters being thrown back at the operator. Bottom kick back fingers also fitted.

The Fence.

This is a graduated scale and can be quickly or finely adjusted by handwheel through rack and pinion. It is provided with a ball lever lock, adjustable scale pointer and stop to prevent fence coming into contact with the saws. An adjustable brass screw slides on the feed surface.



The Saw Spindle Drive.

This is from a totally enclosed fan cooled motor by multiple spacesaver belts. A turnbuckle belt tension device is fitted providing constant belt tension and quick adjustment when required. Louvred covers provide easy access to motor.

The Overhead Feed Unit.

The unit is supported from a rigid slide on the rear of the upper main frame giving 5" of rise and fall actuated through gear and screw by handwheel. Each roller is spring loaded permitting up to 3/8" variation of timber thickness being fed. Sufficient roller pressure is already catered for in the depth scale setting. The drive to the rollers is from a two speed totally enclosed fan cooled motor through worm and wormwheel, gears and chain, to give six feed speeds which are instantly engaged by the turn of a handwheel. Apply column lock before feeding.

Ammeter

This indicates the power being absorbed by the saws. The needle should not read in excess of the red line for long periods. Taking notice of the amp reading gives a good indication as to when saws require sharpening.

Bearings

Saw Spindle	(1 off	SKF 22310 (Conventional Design)
	(1 off	SKF 1310
Gearbox	(4 off	SKF 63062 (Self Lub.)
	(1 off	SKF RMS 6 (Self Lub.)
Feed Roller R & F Screw	1 off	SKF 0.8 (Self Lub.)
Saw Spindle Rise and Fall Screw	1 off	SKF 0.8 (Self Lub.)
Table Rollers	20 off	SKF 410249 (Self Lub.)
Feed Rollers	10 off	SKF 62062 RS (Self Lub.)
	(25 h.p. M/c	4 off
V - Belts	(30 h.p. M/c	5 off
	(40 h.p. M/c	6 off
		Alpha 630
		" "
		" "

... BLOW AWAY HARMFUL DUST,
CHIPS AND DIRT WITH A
WADKIN ELECTRIC BLOWER

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

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

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

Please state voltage when ordering.



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