Wadkin

OPERATING AND MAINTENANCE INSTRUCTIONS

12" Circular Sawbench Type S.S.

INSTRUCTION BOOK No. 743

MODIFICATIONS ARE MADE TO THESE BOOKS FROM TIME TO TIME AND IT IS IMPORTANT THEREFORE THAT ONLY THE BOOK SENT

Wadkin

12″ Circular Sawbench Type S.S.

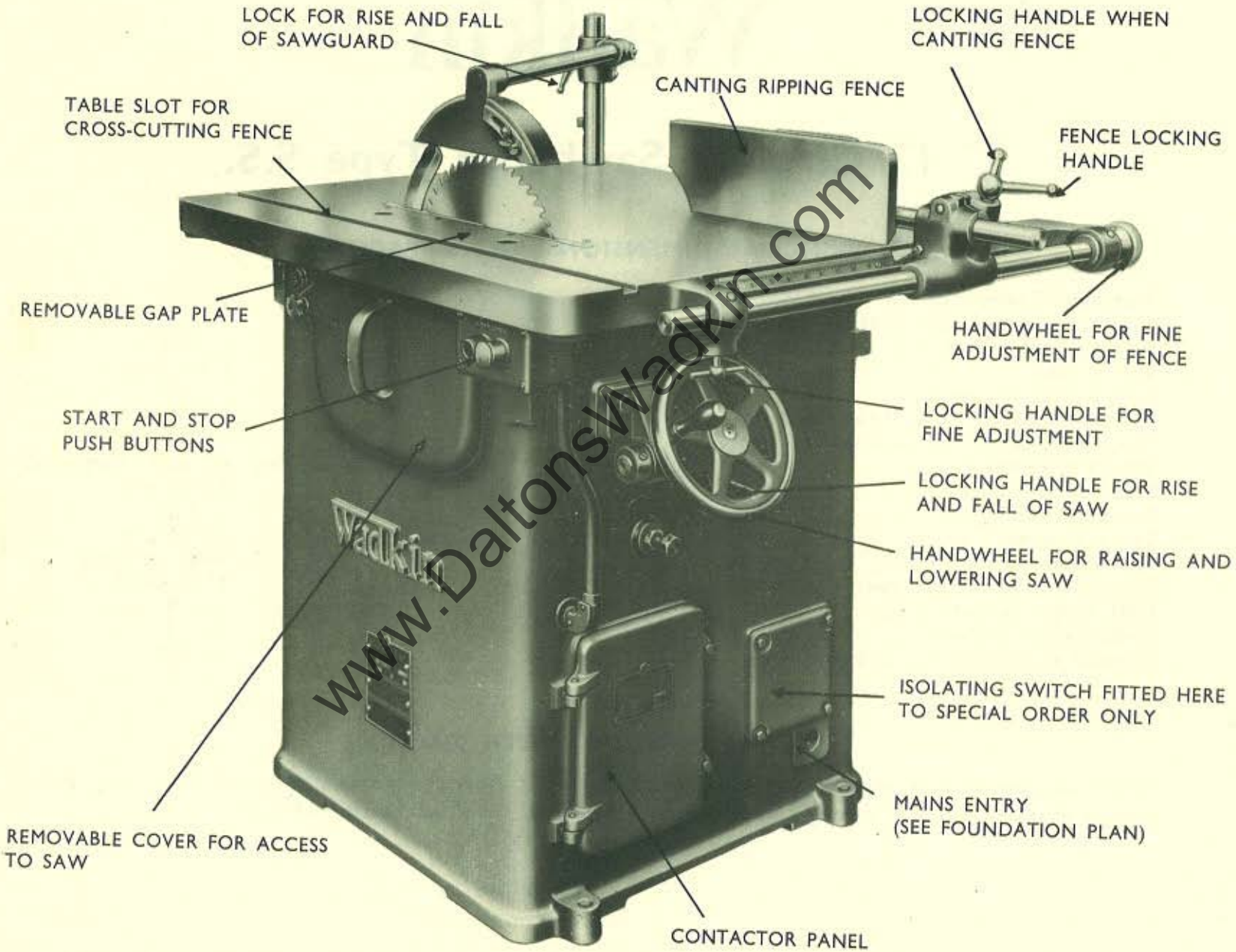
PRINCIPAL DIMENSIONS AND CAPACITIES

Maximum diameter of saw	12″
Maximum depth of cut using 12″ saw	3″
Height of table from floor level	2′ 8″
Size of table	2′ 9″ × 2′ 4½″
Rise and fall of saw	3¼″
Distance between front of table and saw	8″
Maximum distance between saw and fence	18″
Size of fence plate	15″ long × 4½″ high. Canting 45°
Speed of saw spindle	3,200 r.p.m.
Power of motor	3 h.p.
Speed of motor	2,850 r.p.m.
Will accommodate grooving heads up to	1¼″ wide × 1″ deep
Diameter of spindle for saws	1″ diameter
Nett weight in cwts.	5
Gross weight in cwts.	7
Shipping dimensions in cubic feet	37

DETAILS INCLUDED WITH MACHINE

Motor and control gear with driving belts ; canting ripping fence ; adjustable sawguard and riving knife ; one set of spanners ; saw packing ; one lubricating pump and tin of ball bearing lubricant.

Wadkin Ltd., Green Lane Works, Leicester. Telephone: Leicester 27114 (4 lines), 28021 (3 lines).
London Office: Brookfield House, 62-64 Brook Street, W.1. Telephone: Mayfair 7048 and 7049.



INSTALLATION

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

FOUNDATIONS

If mill floor consists of concrete, no special foundation is necessary. $\frac{1}{2}$" diameter rag bolts or plates and bolts should be used (not supplied with machine). Cut 4" square holes in concrete and run with liquid cement to fix. Alternatively, Rawlplugs may be used. A wood floor, if rigid, is satisfactory with coachscrews for fixing.
The machine should be carefully levelled before fixing and again after final fixing to ensure that no distortion has taken place.

WIRING

For detailed cabling instructions, see wiring diagram ~~D191/3A~~ D 579/1 on end page.

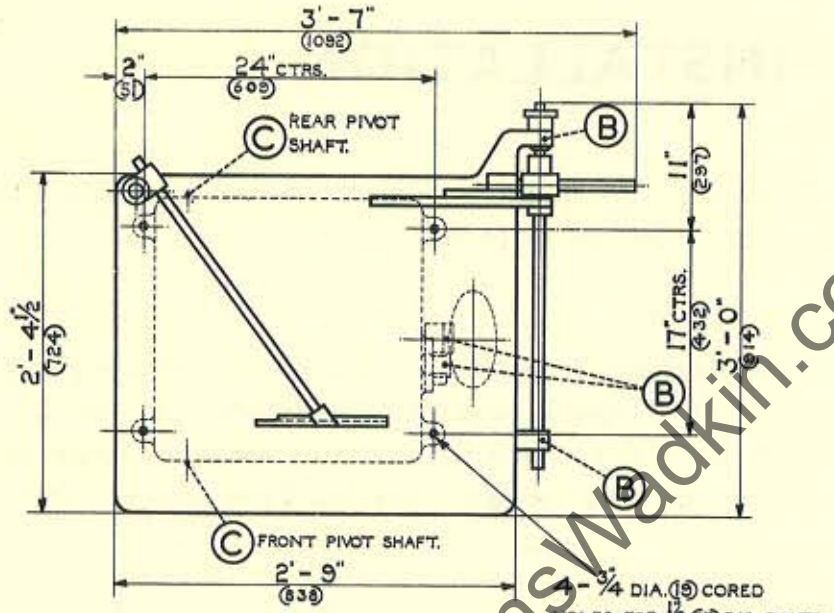
DUST EXTRACTION

The machine has a 3" × 7" rectangular exhaust outlet for connecting to dust extraction piping, the exhaust hood being built in the machine.

BALL AND ROLLER BEARING LIST

POSITION ON MACHINE		MAKERS NUMBER	QUANTITY	BORE	OUTSIDE DIA.	THICKNESS
SAW SPINDLE (SAW END)		SKF CRL 11	1	$1\frac{3}{8}$"	3"	$\frac{11}{16}$"
SAW SPINDLE (PULLEY END)		SKF RM 8	1	1"	$2\frac{1}{2}$"	$\frac{3}{4}$"
3 H.P. MOTOR A3K	DRIVE END ..	SKF RLS 8	1	1"	$2\frac{1}{4}$"	$\frac{5}{8}$"
	NON-DRIVE END	SKF 6204	1	20 mm.	47 mm.	14 mm.

THE SAW SPINDLE is driven by two 31A vee belts, 31" inside length × $\frac{1}{2}$", from the motor mounted on saw carriage.



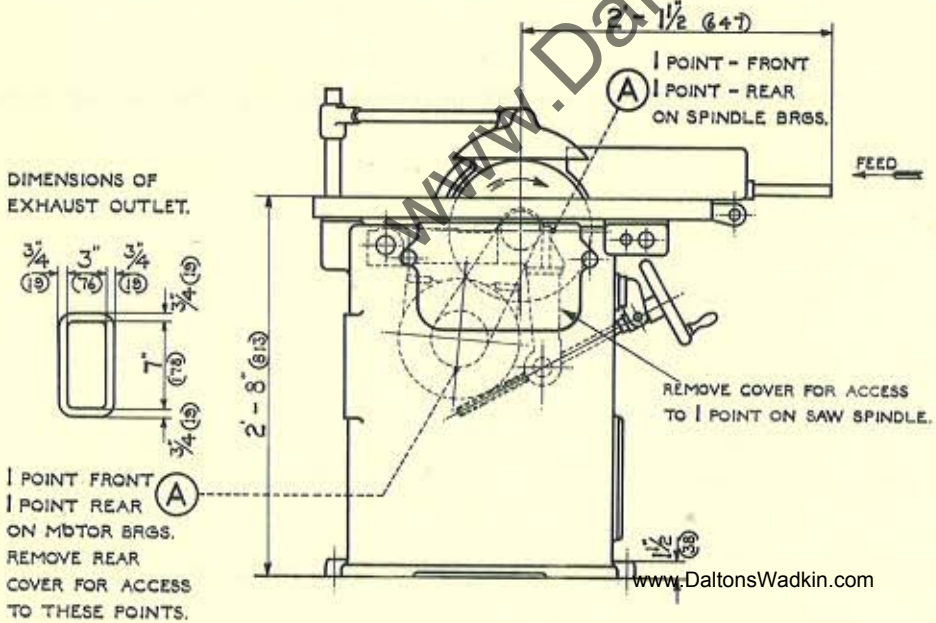
12" CIRCULAR SAWBENCH

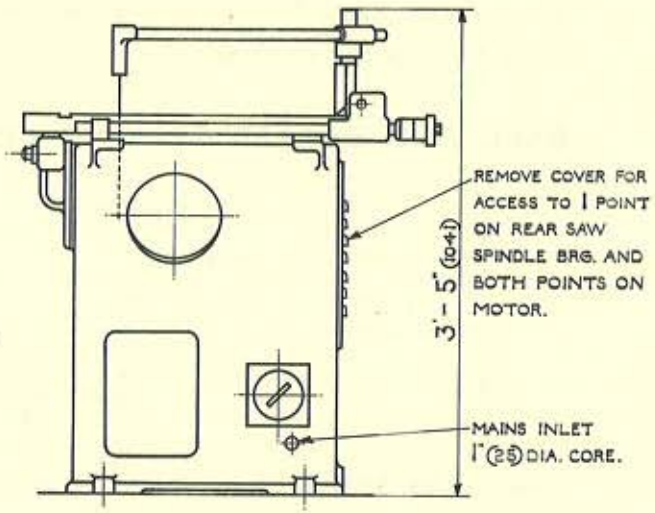
TYPE SS.

WITH RISING AND FALLING SAW.

FOUNDATION PLAN AND LUBRICATION CHART.

DIMENSIONS IN FEET INCHES AND MM.





LUBRICATION INSTRUCTIONS

POINTS A Give four to six depressions of grease gun every three to six months, using Wadkin Ball Bearing Grease, Grade L6.

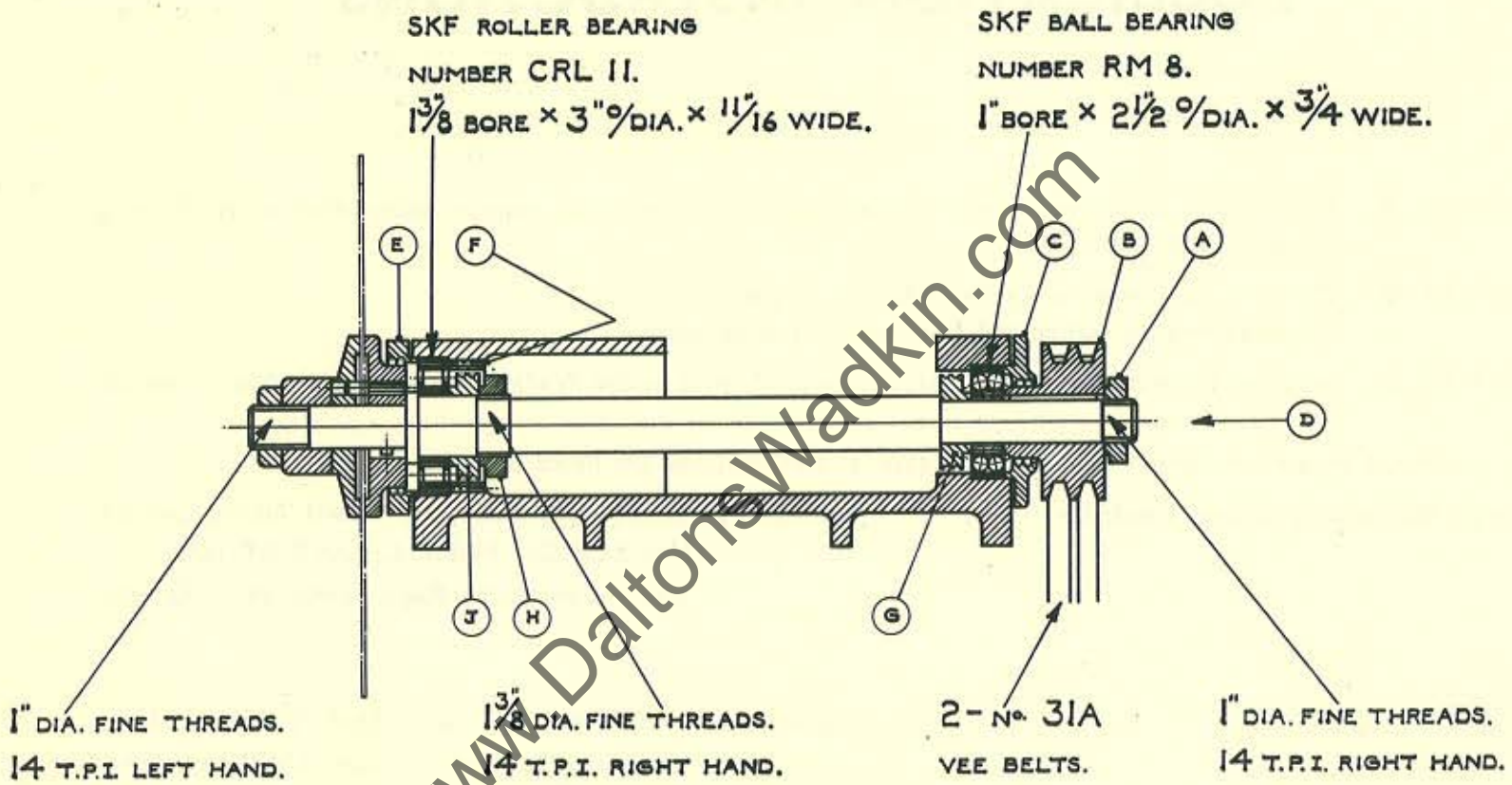
POINTS B Oil once per week, using Wadkin Oil, Grade L4.
Oil also elevating screen and saw guard adjusting screw.

POINTS C Give one to two depressions of grease gun each week, using Wadkin Ball Bearing Grease, Grade L6.

If it is desired to use lubricants other than Wadkin, the equivalents are listed below:—

Wadkin Ball Bearing Grease, Grade L6 . . . . Equivalents: Shell Mex and B.P. Ltd. Shell 'Nerita' Grease 3
Mobil Oil Co. Mobil Grease B.R.B. No. 1
Caltex Lubricants. Regal Starfak No. 2 Grease.

Wadkin Oil, Grade L4 . . . . . Equivalents: Shell-Mex & B.P. Ltd. Shell 'Vitrea' Oil 33.
Mobil Oil Co. Mobil 'Vactra' Oil (Heavy Medium).
Caltex Lubricants. Caltex Aleph Oil.



SECTION THROUGH SAW SPINDLE.

SPINDLE ASSEMBLY

To remove saw spindle from machine (for renewing ball and roller bearings, etc.), proceed as follows:—

1. Isolate machine electrically.
2. Remove gap plate and saw, also front and rear covers on main frame.
3. Wind saw carriage to lowest position.
4. Slacken vee belts by adjusting two nuts on motor foot and remove vee belts.
5. Remove locknut (A) after loosening small countersunk locking screw.
6. Remove pulley (B) and key.
7. Remove four hexagon head screws and end cap (C).
8. Knock out spindle in direction of arrow (D) using a piece of wood or soft metal (brass, copper or lead).
9. Knock bearing out of rear housing.
10. Remove four hexagon hole cap screws in end cap on front saw carriage bearing and end cap (E). Outer race of roller bearing can now be knocked out by using a piece of $\frac{1}{8}$" diameter steel inserted through two holes (F).
11. Clamp spindle in vice. Remove grease retainer (G). Remove bearing locknut (H) after loosening small countersunk locking screw. Remove grease retainer (J) after which inner race of roller bearing can be removed.

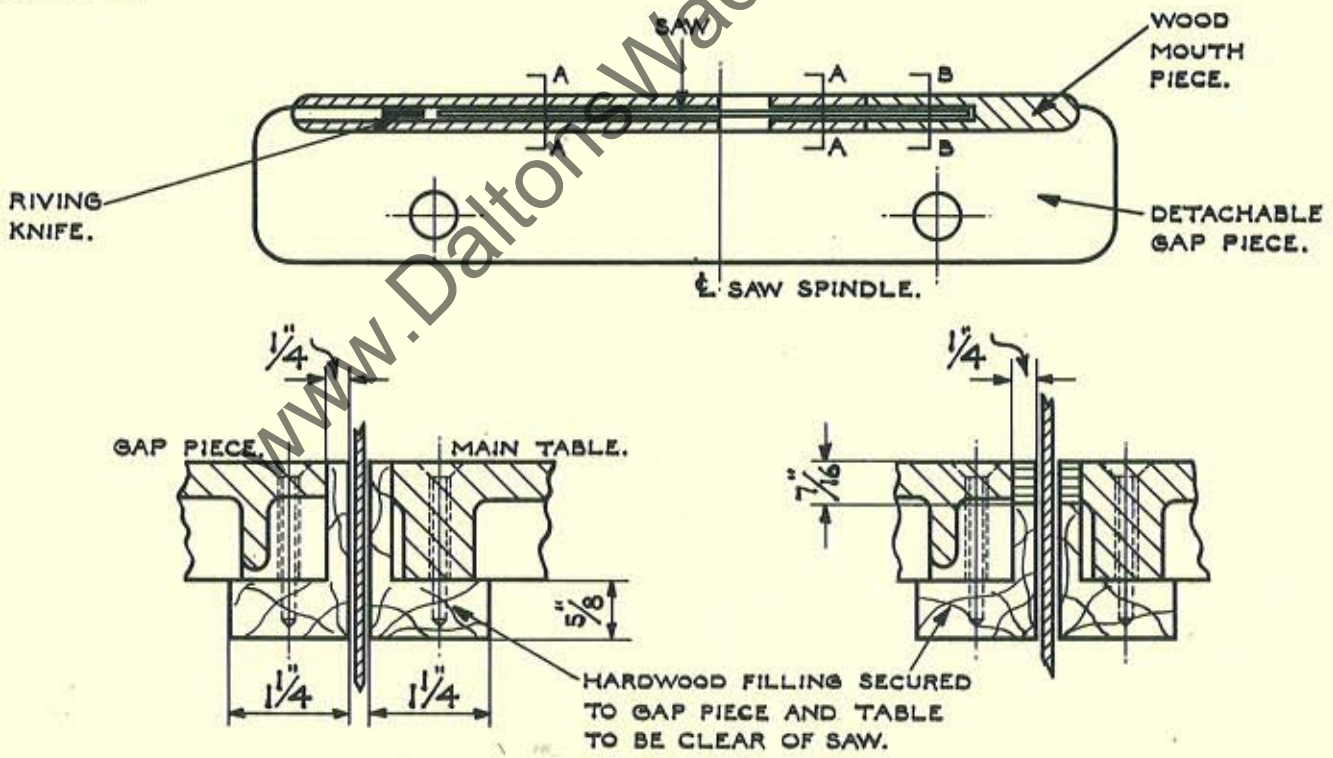
TO RE-ASSEMBLE, reverse the above procedure, packing the bearing housings with Wadkin Ball Bearing Grease, Grade L6, ensuring that no dirt or grit enters the housings or bearings.

TO FIX THE SAW

The saw guard must first be swung outwards. Remove the loose plate or gap piece in the table as well as the packing. The left-hand thread saw nut and front collar are to be taken off and the spindle revolved by hand to bring the small driving peg to the top. The saw blade, which must be a good fit on the spindle, is now placed on the spindle up to the back collar and hard back on the driving pin. The front collar and nut are refixed. Take care the threads and the faces of the collars are clean. Place the gap piece in the table and fit the hardwood mouthpiece.

Due to the rise and fall of the saw on the 12″ saw bench SS, felt packing is not used, but the gap is filled with a wood insert as shown below.

If, however, it is desired to fit felt saw packing, this can be arranged as shown in Fig. 9 under the heading "SAW PACKING."



CIRCULAR SAWS

Efficient operation of a circular saw depends on true running of the saw spindle and the collars being perfectly square on the faces with the axis of the spindle; it must run at the correct peripheral speed to ensure straight cutting. The Wadkin Circular-Saw Bench embodies all these requirements and, provided the saw is maintained in a sharp condition with the teeth correctly sharpened and set, efficient service will be given.

After careful study we have evolved a saw that will give good results for general sawing in hard and soft woods.

The standard saws supplied are illustrated in Fig. 1. It is advisable to note the shape of the teeth and the manner in which the teeth are set when the saw is new and to maintain it in that condition. As stated, these saws are for general sawing in hard and soft woods but slight variations can be made to suit prevailing conditions if found necessary.

BEFORE PUTTING A NEW SAW to use, it is essential that it is "ranged down" on the teeth to ensure each tooth is cutting and to maintain true running.

Run the saw at normal speed and bring a piece of emery stone up against the teeth very lightly. The stone must be held square with the saw and the process continued until all the teeth show signs of having been touched. The saw is then removed from the machine and completed by filing the tops of the teeth very lightly on the top bevel to take away any "ranging marks" showing on the points. At the same time each tooth is sharpened by filing square across the face with a flat file. Each tooth should be filed with an equal number of strokes.

Take care when replacing the saw in the machine to fix it hard back on the driving pin again.

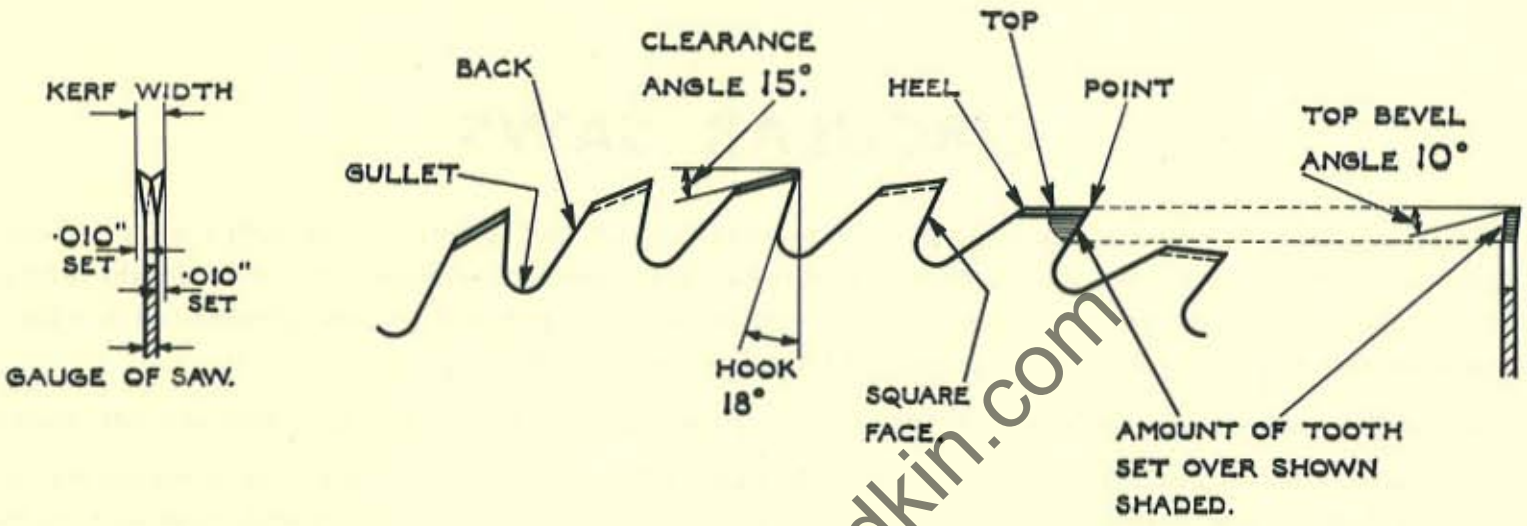
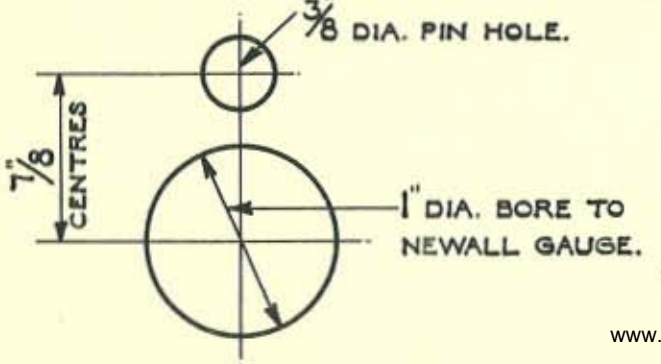
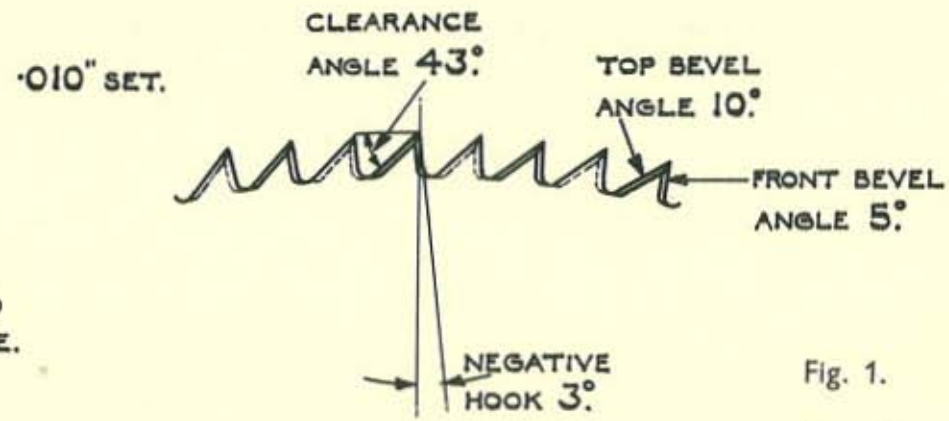


DIAGRAM OF SAW TOOTH SHOWING TERMS USED IN DESCRIBING PARTS AND ANGLES.

12" DIA. RIP SAW. 50 TEETH. 16 GAUGE. Q S 1.



DIAMETER OF SPINDLE & DRIVING



12" DIA. FLAT CROSS CUT SAW.

Fig. 1.

SAW MAINTENANCE

The shape and spacing of the teeth are of great importance in governing the performance of a saw. Keep the teeth sharp and bevelled as shown. Do not allow the set on the teeth to become worn down before resetting. Maintain correct tooth formation and rounded gullets. If the saw does not run true, do not attempt to correct it by forceful packing, but have it sent in for inspection and retensioning.

SET. The amount of set to the teeth should be sufficient to give clearance to the body of the saw so that there is freedom from friction between saw and timber. It is generally accepted that the teeth are "spring set," i.e., the tips of alternate teeth are bent to the right and left as shown in Fig. 2. For good sawing the amount of set on each side of the saw must be identical otherwise the saw will run to one side. To check the set, cut into a piece of wood a few inches when a small, even triangle should be seen as Fig. 3. The exact amount of set each side varies with the timber being cut, usually .010" to .015".

For clean cutting, just sufficient should be allowed to prevent binding and heating. More set is required for wet, woolly timber than for dry, close grained timber and the amount of set is greater for crosscutting saws than those for ripping.

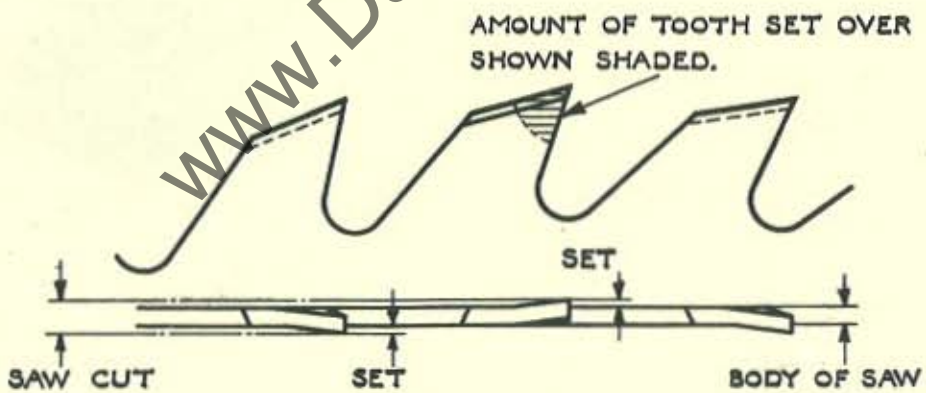


Fig. 2.

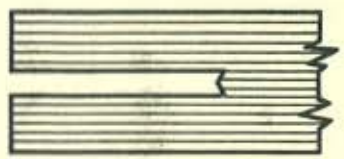


Fig. 3.

SAW MAINTENANCE (contd.)

MACHINE SETTING

A machine made by Wadkin Ltd., recommended for efficiently setting the teeth, is illustrated in Fig. 4, and will deal with saws 8" to 36" diameter. The micrometer dial indicates accurate readings of the amount of set in thousandths of an inch.

HAND SETTING

Where the number of saws does not warrant a machine being installed the saws are set by hand using a tool as shown in Fig. 5. This tool is provided with six notches to take saws from 8 to 14 gauge thick, while the amount of "set over" is derived by using the gauge shown in Fig. 6.

For the process of setting, the saw is securely clamped in a vice.

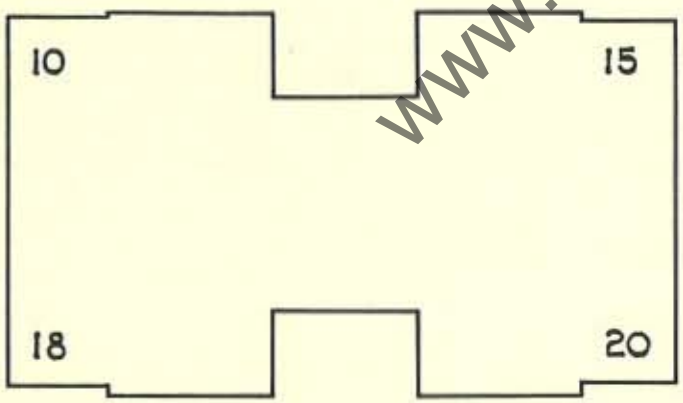


Fig. 6.

Fig. 4.

Fig. 5.

SAW SHARPENING

Saw teeth get blunt in the course of use and need to be reconditioned. Do not run a saw when blunt, but remove from the machine and resharpen. Hold the saw rigid in a vice, Fig. 7, and file the face of each tooth (square across for ripsaws and along the bevel for cross-cut saws) by giving an equal number of strokes and at the same time file the gullet, taking care to keep the gullet well rounded. A flat faced saw file with rounded edges, as Fig. 8, must be used. File the tops of the teeth very lightly on the bevel merely to remove any slight burr. In the course of repeated filing the teeth lose the original shape and the gullets shallow. To restore the shape of each tooth, essential for satisfactory performance, it is necessary to grind the teeth by means of a grinding wheel on a saw sharpening machine. The machine is usually of the automatic type and feeds each tooth, giving equal spacing or pitch. It is essential to "range down" the saw in the machine before use in the manner described under the heading " CIRCULAR SAWS."

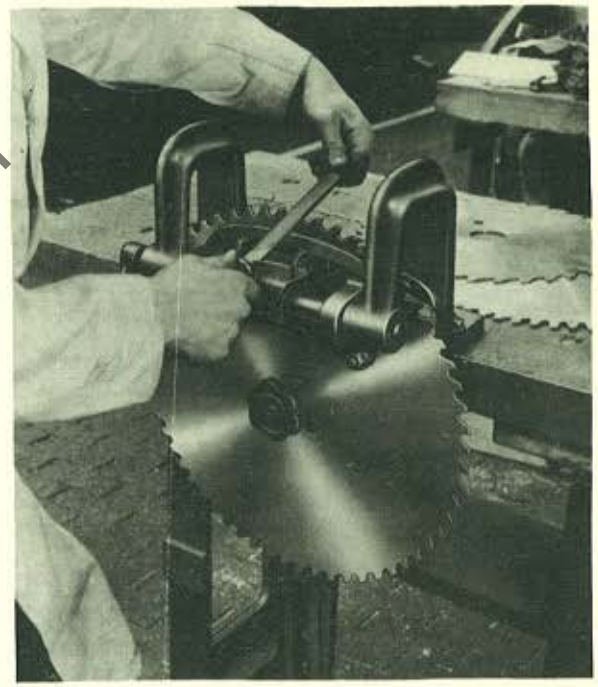


Fig. 7.

SAW PACKING

Although it is usual to provide a circular saw with some form of packing, it is not intended to correct a saw that is not running true or is buckled. The idea of packing is to steady the saw, but the packing must not be too tight otherwise heat is generated with consequent loss of tension in the saw. A packing recommended by us is hard white felt approximately $\frac{1}{2}$" thick, fixed in the manner shown in Fig. 9.

A hardwood mouthpiece is necessary of a length to extend beyond the bottom of the saw teeth in order to hold the felt in position. Wood strips secured to the underside of the table and gap piece support the felt at the front of the saw, while wood strips behind the saw close the gap in the table.

Apply a small quantity of lubricating oil to the felt before use.

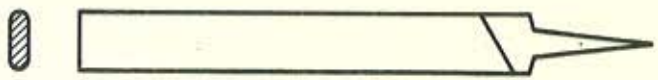


Fig. 8.

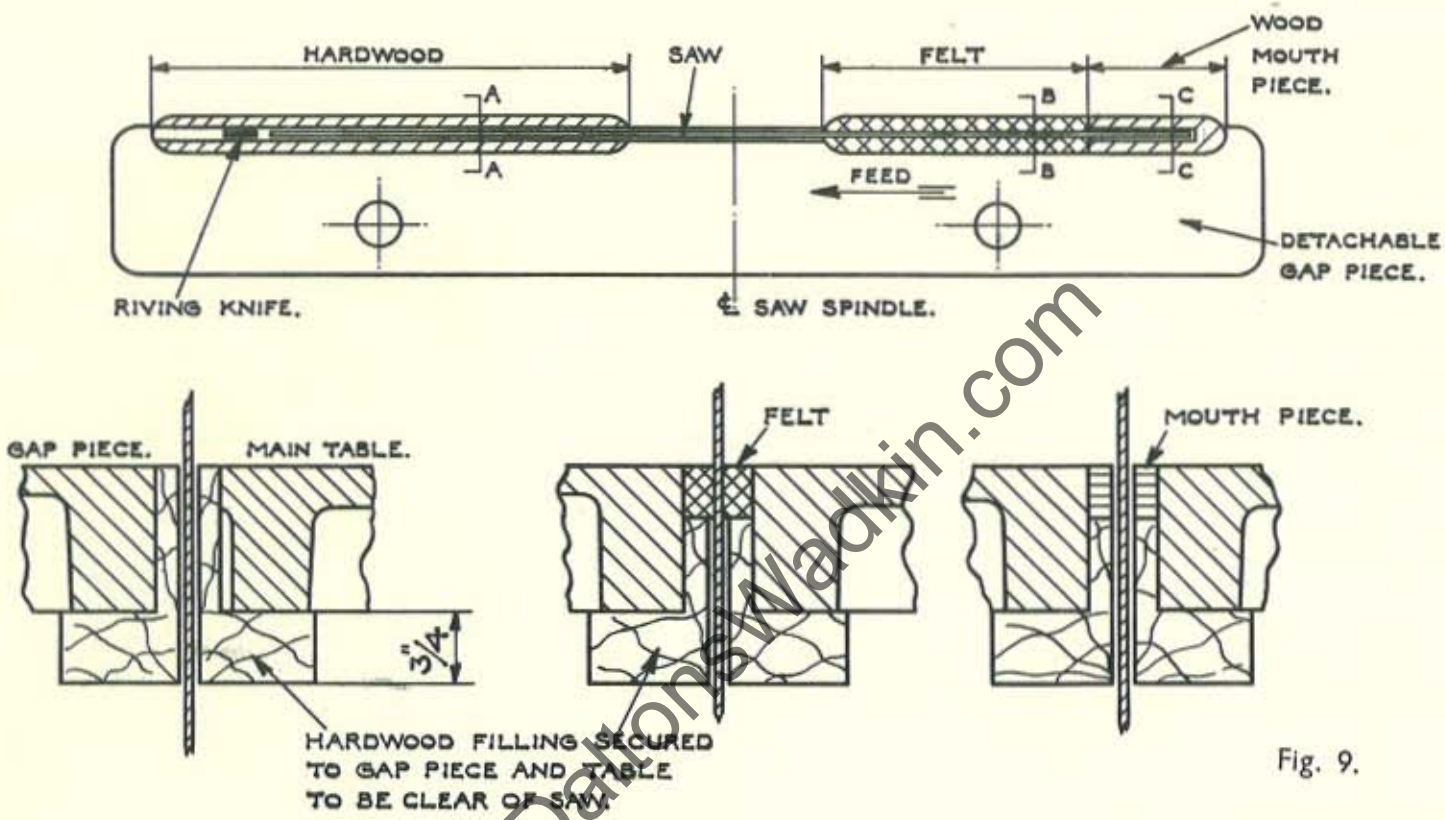


Fig. 9.

SAFETY PRECAUTION

Always adjust the guard to protect as much of the saw as possible and fix the riving knife $\frac{1}{4}$" behind the saw at the rear. The knife must conform to the curvature of the saw.
Use a push-stick, as Fig. 10, as much as practicable when feeding timber in order to avoid accident.

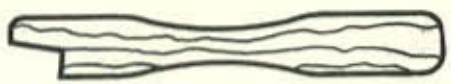


Fig. 10.

HOLLOW GROUND SAWS

Where an exceptionally clean surface finish is required, we can supply a saw of this description for cross-cutting in hard or soft woods. It is hollow ground from collar to rim with clearance on the teeth for working without set. The teeth are sharpened in a similar manner to a flat cross-cut saw.

CUTTER EQUIPMENT

MOULDING

By fitting a $3\frac{1}{2}$" square $\times 1\frac{3}{4}$" wide cutterblock, QW16, to the saw spindle, a wide range of moulding up to $1\frac{3}{4}$" wide can be carried out. Details of cutters can be obtained on application.

When using a square cutterblock the metal gap plate must be removed from the table and a wood filling-in piece used. The opening must be sufficient only to clear the cutters as they protrude through the table. The rise and fall adjustment on the spindle gives the desired depth of cut.

TRENCHING AND GROOVING HEADS

Can also be supplied for cutting up to a maximum of $1\frac{1}{4}$" wide, 1" deep. The type of head is shown in Fig. 11, and is provided with side or spur cutters to give clean shoulders in the grooves. It is made in two parts and spacing collars give the desired width of groove rising by $\frac{1}{16}$".

$8\frac{1}{2}$" diameter cutting circle.

Head JP541 for grooves $\frac{3}{8}$" to $\frac{11}{16}$" wide up to $\frac{9}{16}$" deep.

Head JP543 for grooves $\frac{11}{16}$" to $1\frac{1}{4}$" wide up to 1" deep.

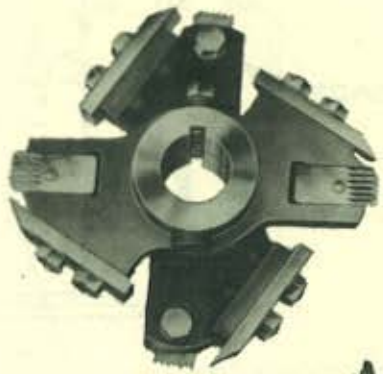


Fig. 11.

Each head includes spacing collars up to the maximum width. To fix the head, first remove the spindle nut, sleeve and front saw collar and driving pin. Fix the *long driving pin* in the back saw collar and slide one head close up to the collar, add the spacing collars to give the desired width of groove and fix the other head. Finally fix the remaining collars and lock tight.

Alternatively, a wobbling or grooving saw unit is offered as shown in Fig. 12, which will cut grooves from $\frac{1}{8}$" wide and can be used where a flat botton to the groove is not essential and the finish not important. The saw is 8" diameter and of our light type with adjustable collars for cutting grooves from $\frac{1}{8}$" to $1\frac{1}{8}$" wide up to 1" deep.

Fig. 12.

ACCESSORIES

The addition of the fence shown in Fig. 13 enables cross-cutting and mitreing to be carried out. It is fitted with an adjustable stop for quick setting of the timber and will cut off angles up to 45° to the saw. The fence used on Wadkin Saw Benches, Type SS, is No. 1 size cross-cutting and mitreing fence.

Fig. 13.

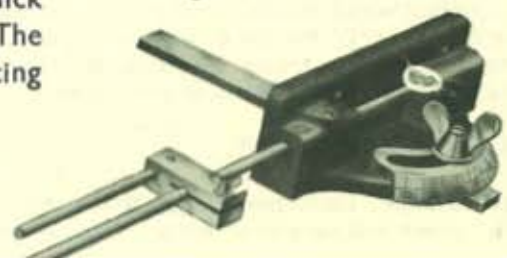
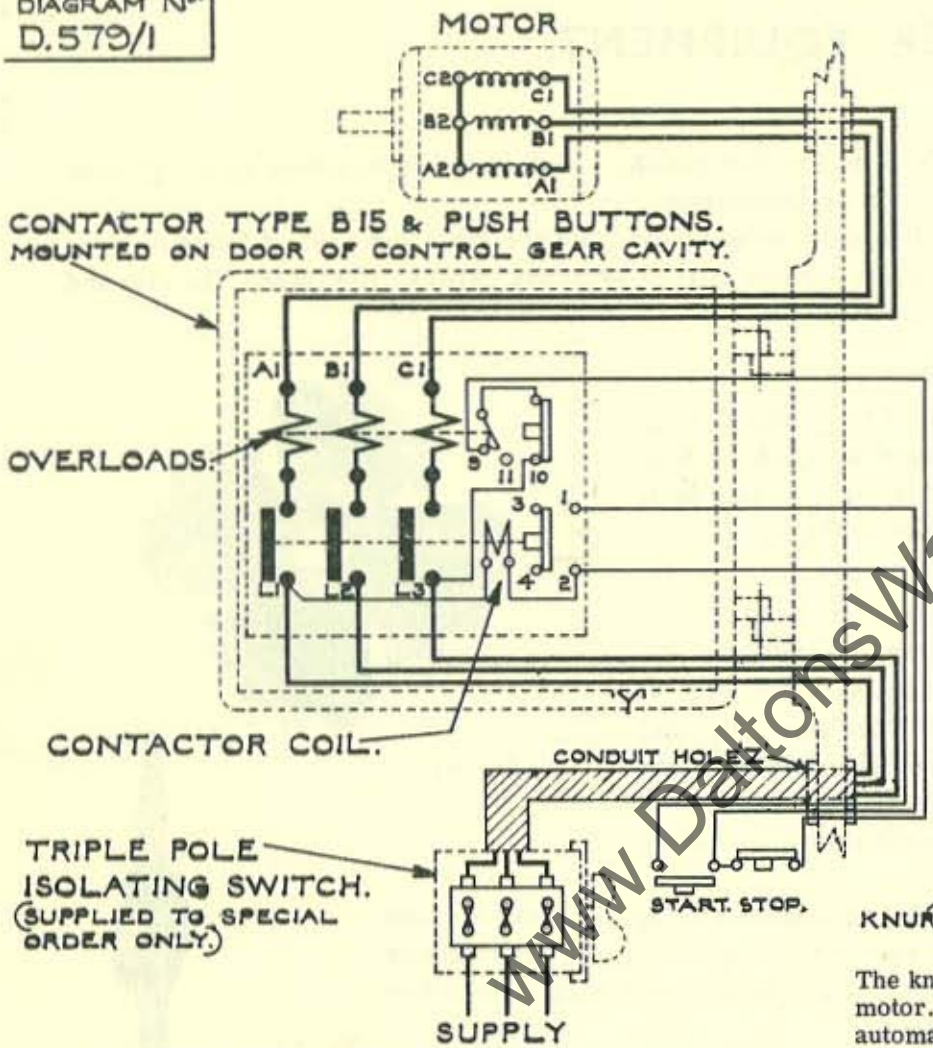
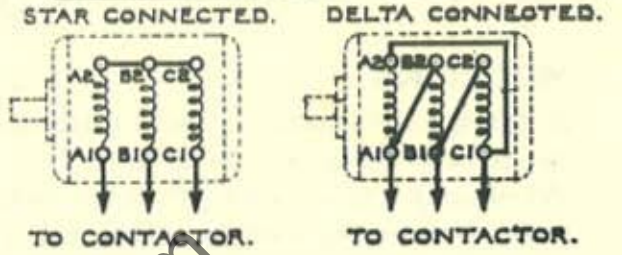


DIAGRAM Nº.
D.579/1

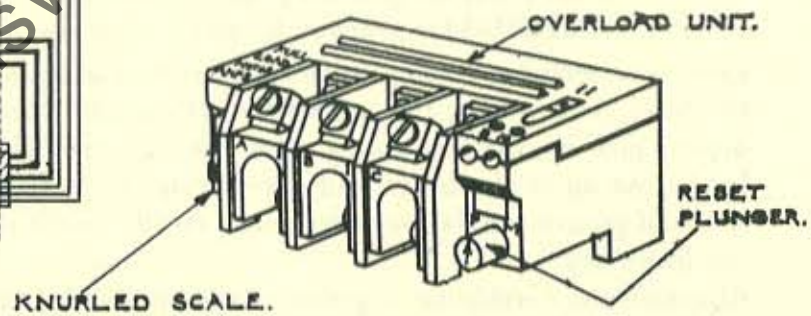


DUAL VOLTAGE MOTORS ONLY.



When dual voltage motors are employed the following connections are made:-
200/250 volt circuits, motor delta connected.
340/440 volt circuits, motor star connected. The necessary connections are made either in the control gear cavity or at the motor terminal block.

OVERLOAD PROTECTION.



The knurled scale should be set at the full load current of the motor. The arrow on the reset plunger should point to 'M' for automatic reset and 'P' for hand reset.

INSTALLATION INSTRUCTIONS.

Fit triple pole isolating switch near machine, unless supplied by Wadkin Ltd. to special order, so that the electrical gear may readily be isolated for inspection purposes. Bring supply cables to isolating switch and to L1 - L2 - L3 at contactor through conduit which should be screwed into the machine and secured by means of locknuts. A hole is provided in the machine frame at 'Z' for the conduit carrying the cables to the contactor. Leave sufficient slack in the cables at 'Y' to allow the door to open freely. Ensure that the machine is adequately 'earthed' and that the direction of rotation of the motor is correct before putting machine into service. To reverse rotation interchange L1 and L3.

OPERATING INSTRUCTIONS.

To start machine, close isolating switch and press 'start' button. To stop machine press 'stop' button. To lock off machine, press and turn stop button. This must be released before a start can be made.