

# Wadkin

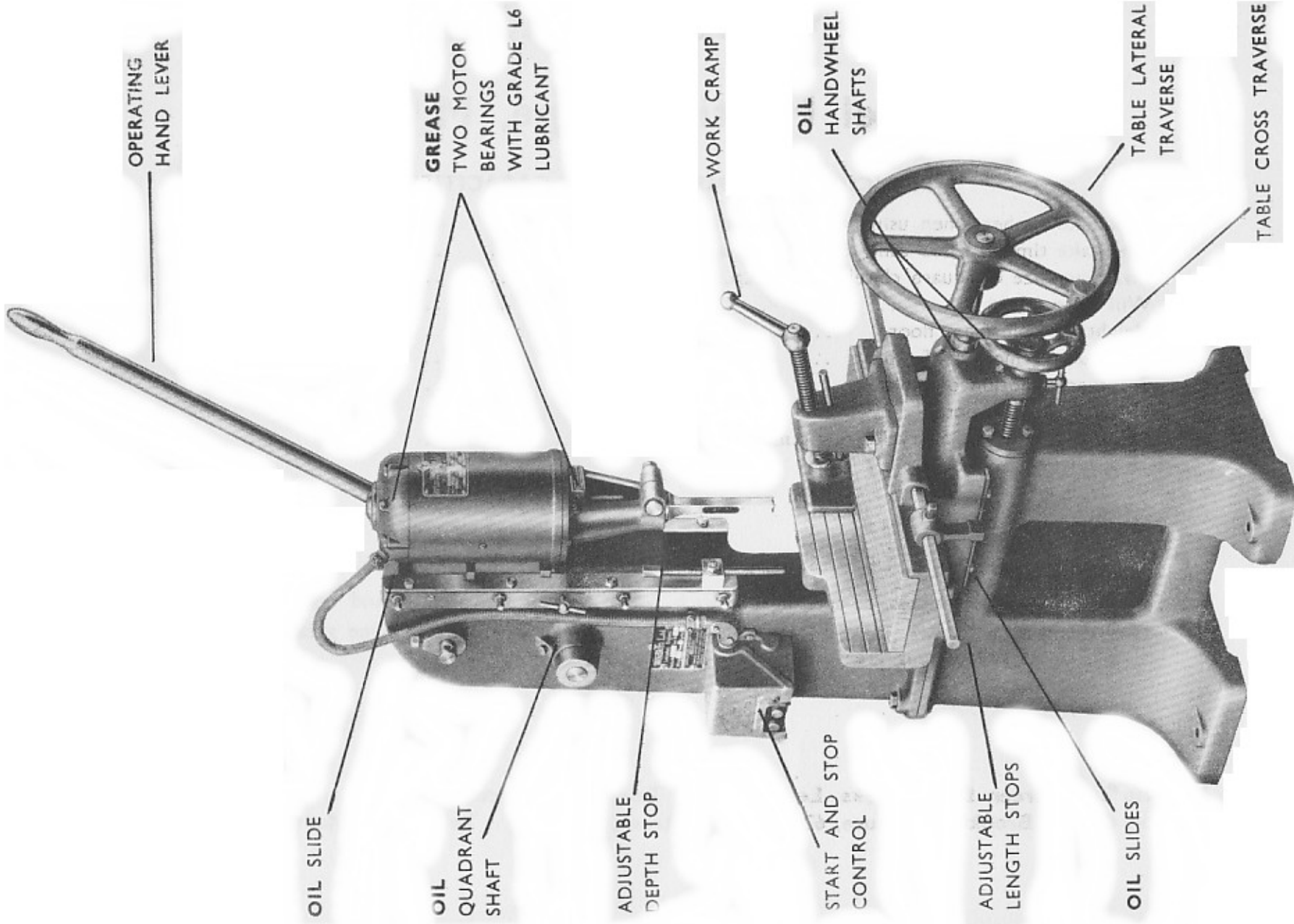
## Chisel Mortiser Type, M.G.

### PRINCIPAL DIMENSIONS AND CAPACITIES

Will take timber when using 4" long chisels .. .. .	10½" deep × 7" wide
Will take timber when using 6½" long chisels .. .. .	9" deep × 7" wide
Maximum size of square chisel with 1½ h.p. motor .. .. .	1"
Will bore up to .. .. .	¾" × 5" deep
Height of table from floor .. .. .	22¼"
Longitudinal motion of table .. .. .	18"
Transverse motion of table .. .. .	3½"
Horse power of motor .. .. .	1½
Speed of motor on 50 cycles in r.p.m. .. .. .	2800

### DETAILS INCLUDED WITH THE MACHINE

One set of adapter bushes, comprising one each  $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{3}{8}$ ", for bits and  $\frac{13}{16}$ " and  $1\frac{3}{16}$ " for chisels. One stop bar with two stops. One depth stop. One set of spanners. One grease gun and sample tin of ball bearing grease lubricant.



OPERATING  
HAND LEVER

GREASE  
TWO MOTOR  
BEARINGS  
WITH GRADE L6  
LUBRICANT

WORK CRAMP

OIL  
HANDWHEEL  
SHAFTS

TABLE LATERAL  
TRAVERSE

TABLE CROSS TRAVERSE

OIL SLIDE

OIL  
QUADRANT  
SHAFT

ADJUSTABLE  
DEPTH STOP

START AND STOP  
CONTROL

ADJUSTABLE  
LENGTH STOPS

OIL SLIDES

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

### **FIXING**

No special foundations are required. A wood floor supported by joists is adequate when coach-screws can be used for fixing the machine. If the mill floor consists of 6" solid concrete no special foundation is necessary. Rag type holding down bolts may be used, and as shown on the foundation plan 6" to 8" square holes should be cut in the concrete and the machine, after careful levelling, grouted in with liquid cement.

### **MOTOR**

See end of booklet for electrical installation instructions.

### **LUBRICATION**

The two ball bearings in the motor to be given three charges with the grease gun every three months. All oiling points must be lubricated daily. See page 2.

It is recommended that only Wadkin special grease lubricant Grade L.6 is used for the ball bearings. Alternative grease, if required, is Shell-Mex Nevita Grease 3 or Vacuum Oil Co. B.R.B.3 For general oil lubrication use a good quality machine oil, Wadkin Grade L.4.

Thoroughly clean down machine weekly.

### **THE TABLE**

It is necessary to fit into the full length of the metal table a piece of hard wood about 1" thick to prevent the mortise from splitting out at the bottom of the work. This must be dead parallel and renewed as occasion arises.

## MORTISING

Do not allow the lips or spurs of the bit to touch the cutting edge of the chisel, they must be set  $\frac{1}{32}$ " clear. To set the bit correctly first keep the lips close up to the cutting edge of the chisel and at the same time set the shoulder of the chisel  $\frac{1}{32}$ " from the machine chuck as shown at 'A,' Fig. 1. When in this position, securely lock the bit and afterwards push the chisel until the shoulder is in contact with the face of the chuck and finally lock tight.

Do not jerk the tool into the work but give steady pressure. Withdraw the tool occasionally from the work to allow the bit to clear itself of chips.

A set of bushes is supplied to take the full range of tools up to the machine capacity.

## HAND LEVER

This is adjustable to the most convenient position by undoing the nut at the back of the quadrant and fixing in any of the holes in the quadrant. The stop 'C,' Fig. 3, is fixed in any of the holes provided to limit the backward movement of the lever.

## STOPS

Stop 'B,' Fig. 2, controls the travel of the tool and determines the depth of mortise. The length of the mortise is obtained by the two stops on the long bar fixed on the table.

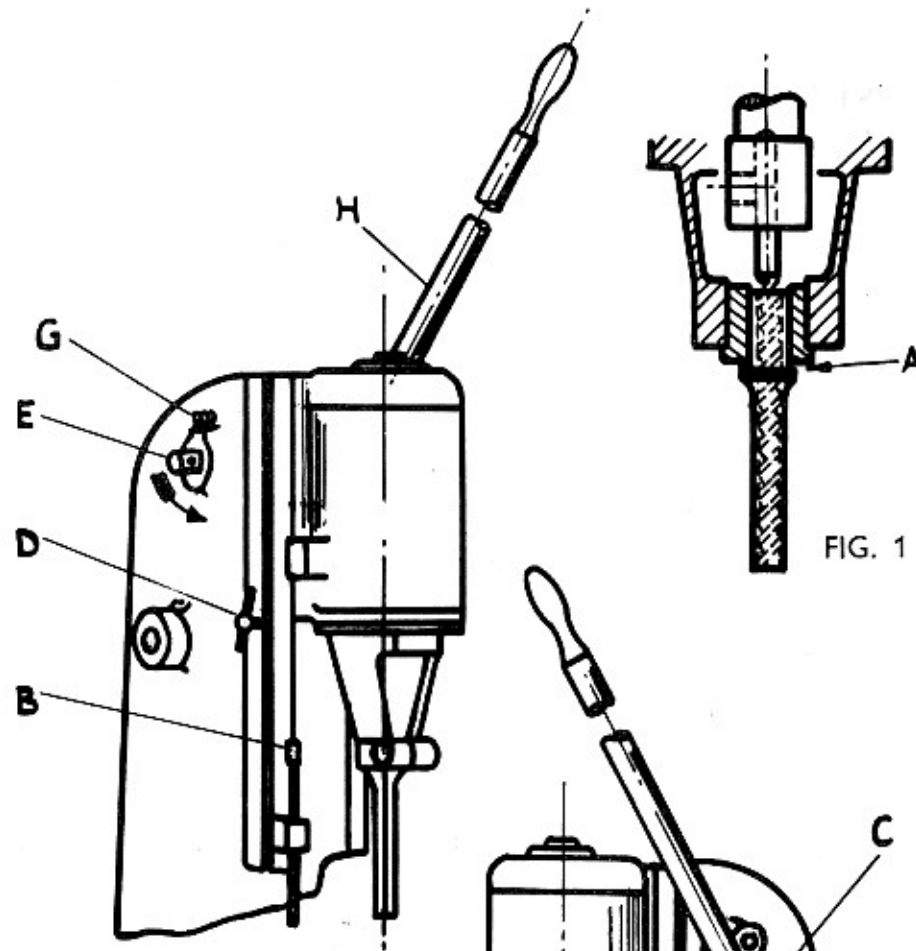


FIG. 1

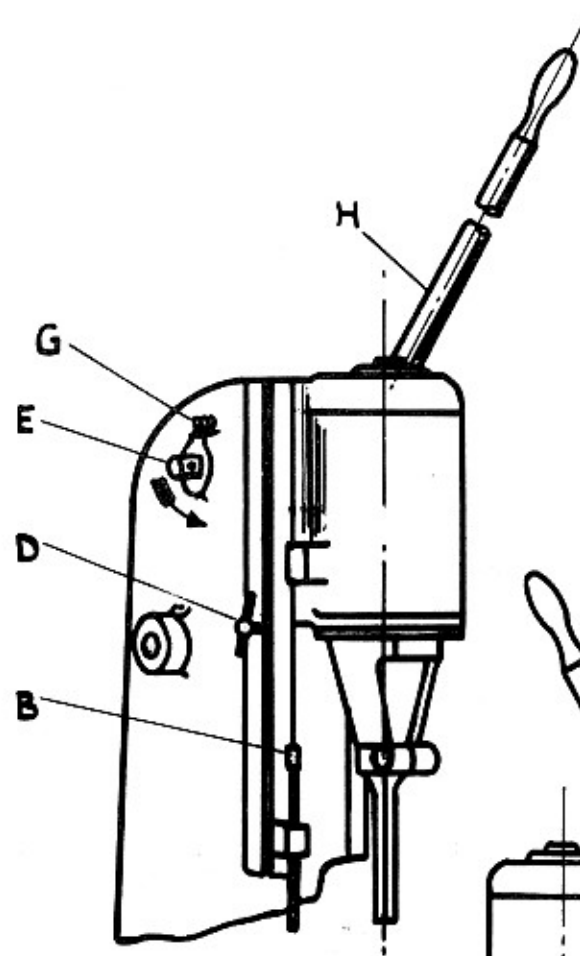


FIG. 2

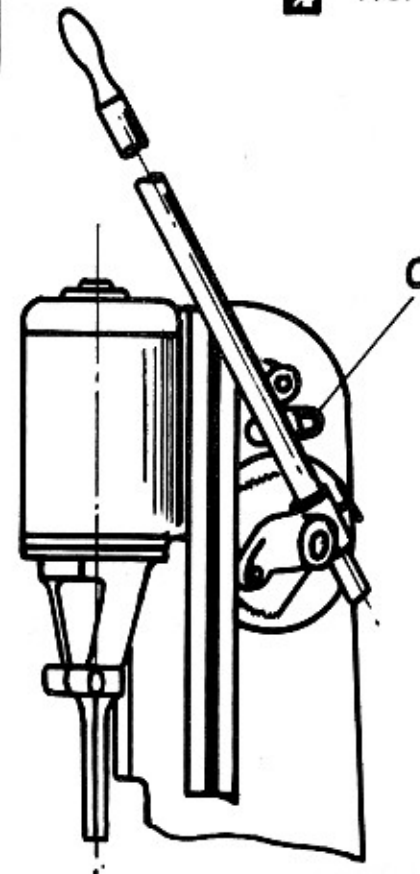


FIG. 3

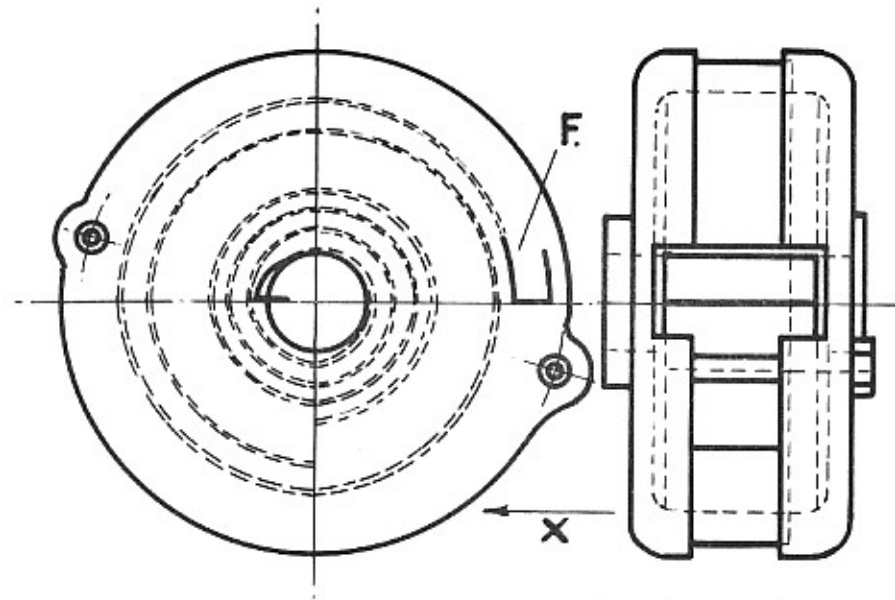


FIG. 4

THIS VIEW IS LOOKING IN  
DIRECTION OF ARROW X.

### COUNTERBALANCE SPRING

The chisel headstock is balanced by a spring arrangement which is set before the machine is despatched. Should it be necessary to adjust or remove the spring, the following instructions must be observed. The complete spring box is attached to spindle 'E,' Fig. 2. To give correct tension to the spring to control the motor in the up and down movement, give a partial turn to the spindle 'E' in anti-clockwise direction with a bar placed in the end of the spindle, taking care to loosen screw 'G', Fig. 2. To test the tension, first tighten screw 'G' and pull down hand lever a few times; if movement is not easy then give a partial turn to the spindle 'E' and lock screw 'G' in either of the locating holes in the spindle.

To remove the complete spring box from the machine the motor headstock should be locked in its highest position using rocking handle 'D' (Fig. 2). Insert a tommy bar through the hole in the shaft 'E' and hold tightly whilst undoing the hexagon head screw 'G.'

Now allow shaft 'E' to turn until the spring is completely unwound. Remove the pip screw on the right hand side of the machine which holds the shaft 'E' in position, and slide the shaft out.

The spring, when mounted in the box, must have the hook pointing upwards as shown at 'F,' Fig. 4.

REMOVE LID OF SPRING BOX & TAKE OUT BROKEN SPRING. NEW SPRINGS ARE SENT OUT BOUND UP WITH A WIRE BAND, AS SHOWN ON INSERT FIG. 4<sup>A</sup>, WHICH MUST ONLY BE REMOVED AS THEY ARE FORCED INTO THE SPRING BOXES. TAKE CARE THAT THE HOOK ON THE OUTER END OF THE SPRING IS POINTING UPWARDS AS SHOWN IN FIG. 4. BY TAPPING THE SPRING INTO THE BOX, THE WIRE BAND WILL FINALLY SLIP OFF & THE SPRING CAN THEN BE BEDDED DOWN.

## SQUARE CHISELS AND BITS

The chisel must be sharpened on the inside only and the cutting edges should be shaped to give a curve shown at Fig. 5 and maintained in a shape as new. Never file the outside as this will reduce the size of the mortise. The bevels of the cutting edges must meet exactly at the corners. The depth 'U' from the corner point to the curve at the centre should be about  $\frac{1}{8}$  the diameter of the size of the bit. The cutting edges must be as short as possible and filed to an angle of about  $35^\circ$  as shown at Fig. 5. The part behind the cutting edges must then taper off to an angle of  $25^\circ$ . It is recommended that the special tool illustrated below (Fig. 7) is used to ensure the correct angle on all four cutting edges of the chisel.

The bit is sharpened by filing above the cutting edges 'V' keeping the file at an angle of  $15^\circ$ . They must be kept in a straight line with the inside points extending past the centre, as shown at Fig. 6. The spurs 'W' must be sharpened on the top and front only, never on the outside. They must be kept in line with the cutting edges 'V.' When a bit is worn away by frequent sharpening replace by a new one, otherwise the square chisel may be split at the cutting edge. Use a file of very fine grade for sharpening both chisels and bits.

## SHARPENER FOR HOLLOW MORTISE CHISELS

The tool illustrated opposite has been produced to enable mortise chisels to be kept properly sharpened. It is used in an ordinary joiner's brace and is maintained centrally with the axis of the chisel by means of a pilot which fits the bore of the chisel. This ensures all four cutting edges being sharpened to the correct angle. The corners only must be finished off sharp with a file.

## BALL BEARING LIST (For $1\frac{1}{2}$ " H.P. motor W.K.T. 22/15)

Motor shaft	1 SKF RM 6 F	$\frac{3}{4}$ " bore,	2" outside diam.,	$\frac{11}{16}$ " wide
Motor shaft	1 SKF RL 11 F	$1\frac{3}{8}$ " bore,	3" outside diam.,	$\frac{11}{16}$ " wide

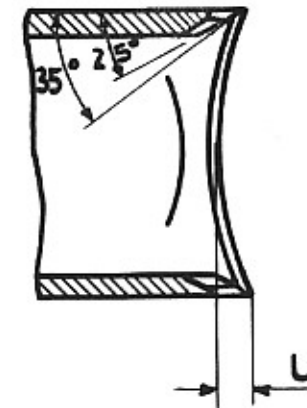


FIG. 5

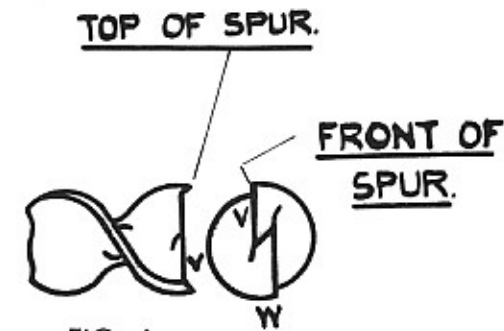


FIG. 6

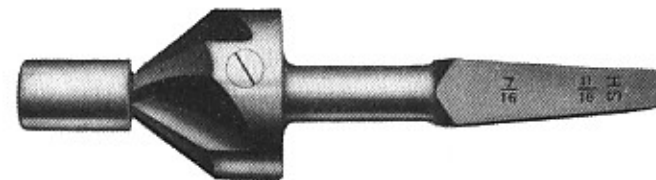


FIG. 7

# ELECTRICAL INSTALLATION INSTRUCTIONS

The cabling between the motor and the control gear has been carried out by Wadkin Ltd., and it is only necessary to bring the line leads to the machine for it to be put into service. This should be done as follows :—

- (1) Fit triple pole isolating switch near the machine, unless this has been supplied to special order by Wadkin Ltd., when it will be fitted and connected up at the machine.
- (2) Connect the line lead to the appropriate terminals. See diagram of connections. The cables should be taken to the machine in conduit and secured by locknuts to the control gear.
- (3) Connect solidly to earth.
- (4) Close isolating switch and press start button. If machine does not rotate in the right direction interchange any two incoming lines.

## FAILURE TO START

- (1) Electric supply is not available at machine.
- (2) Fuses have blown or have not been fitted.
- (3) Isolating switch has not been closed.

## 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.

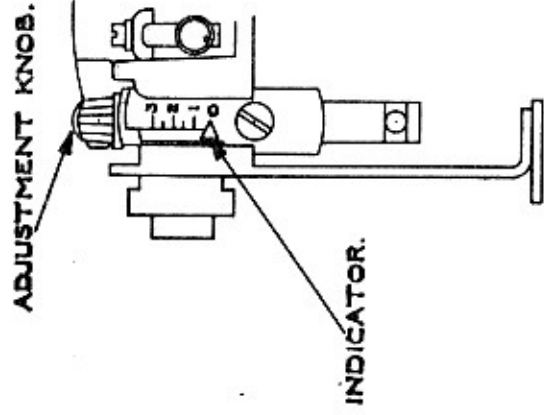
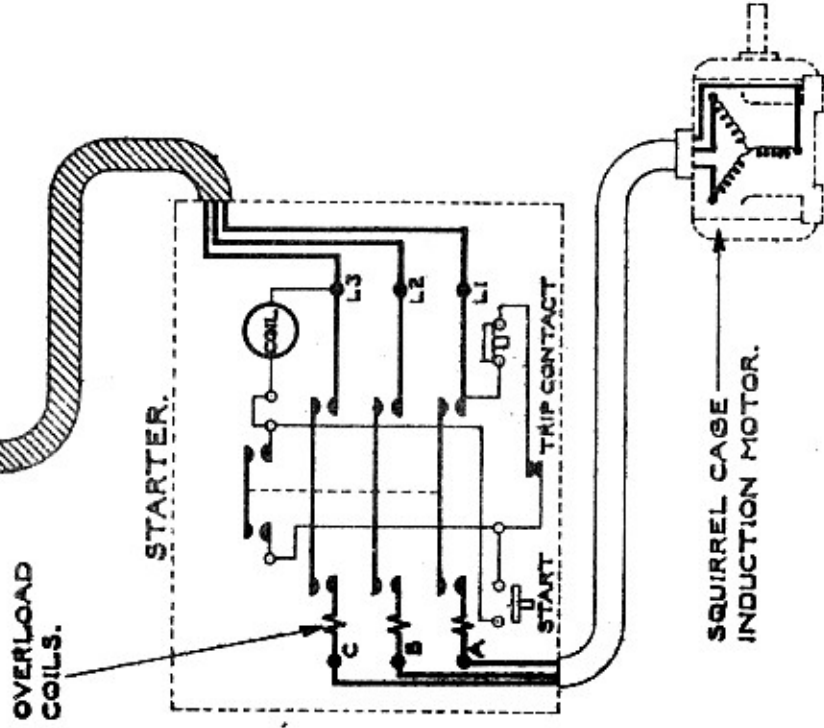
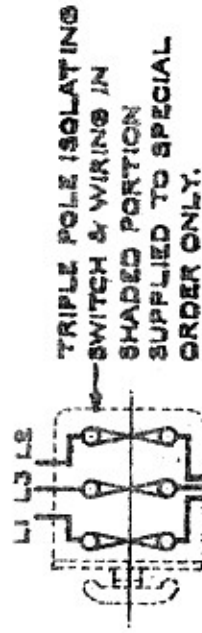
## ADJUSTMENTS

For a finer overload setting, set the load indicator to a lower value and *vice-versa* for a less fine setting. The load indicator should only be moved a small amount at a time.

## 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 Instructions, Card No. 356, which is issued gratis on application.





### TO SET OVERLOAD TRIPS.

MOVE INDICATOR TO FULL LOAD CURRENT OF MOTOR. TRIPS WILL THEN OPERATE AT APPROXIMATELY 20% TO 30% OVERLOAD AFTER ATTAINING FULL LOAD TEMPERATURE.

### 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 LINE CABLES TO ISOLATING SWITCH AND TO L1 - L2 - L3 AT CONTACTOR WHICH SHOULD BE SCREWED INTO THE MACHINE AND SECURED BY MEANS OF LOCKNUTS. CABLING SHOWN THUS TO BE CARRIED OUT BY CUSTOMER UNLESS ISOLATING SWITCH HAS BEEN FITTED BY WADKIN LTD.

### OPERATING INSTRUCTIONS.

TO START, CLOSE ISOLATING SWITCH AND PRESS GREEN BUTTON MARKED 'ON'. TO STOP PRESS RED BUTTON MARKED 'STOP' EARTH MACHINE.

### OVERLOAD.

FOR A FINER SETTING OF OVERLOAD, SET LOAD INDICATOR TO A LOWER VALUE AND VICE VERSA FOR A LESS FINE SETTING. LOAD INDICATOR SHOULD ONLY BE MOVED A SMALL AMOUNT AT A TIME. SHOULD THE MOTOR STOP DUE TO OVERLOAD WAIT FOR A SHORT TIME TO ALLOW THE RELAYS TO COOL AND THEN START IN THE USUAL MANNER.

### ROTATION.

ENSURE THAT DIRECTION OF ROTATION IS CORRECT BEFORE PUTTING MACHINE INTO SERVICE. TO REVERSE ROTATION INTERCHANGE LEADS L1 & L2

WADKIN LTD.  
LEICESTER.

DIAGRAM OF CONNECTIONS.

D.165/3.