

Operating and Maintenance

M4/MK2 $\frac{7}{8}$ 10 S1

Models M.B.4, M.F.4 Rc

OPERATING AND MAINTENANCE INSTRUCTIONS

1. GENERAL :

Before operating this Machine remove belt cover to expose the top of the gear box. Remove and discard screw, item number 94, which will be found on the top of the oil filler plug. This is to enable the air to circulate inside the gearbox.

Machines leave our Works with the gearbox already filled with the correct grade and quantity of oil. Under no circumstances must the gearbox oil level be increased, neither must an oil of a higher viscosity be used, otherwise overheating of the gearbox will occur. Your attention is drawn to paragraph number 4 dealing with lubrication instructions.

When the Machine is received new it is advisable to run it at 1000 r.p.m. for a short period to give the bearings a flushing of lubrication prior to operating the Machine at its higher speeds.

2. CONNECTION TO MAINS SUPPLY :

Make sure that the main electrical supply is disconnected before starting to wire and proceed in the following manner with reference to the wiring diagrams shown:

- Disconnect wire at motor terminal box.
- Remove motor assembly from head.
- Remove switch assembly from head by extracting screws, item number 68, taking care that the wire previously attached to the motor is not completely pulled through the head.
- Take mains wire, pass through hole at top of head into casting recess where the switch assembly fits into the head.
- Connect mains wire to switch as per wiring diagram.
- Replace switch into head.
- Replace motor assembly and reconnect wiring to motor terminal box.
- Check that wires do not foul the belt when it is in the lowest position.

3. RUNNING INSTRUCTIONS :

This Machine is designed to give the following ten speeds, 80, 130, 310, 400, 500, 700, 1000, 1550, 2770 and 4000 r.p.m. The initial drive is by V-belt on a five-stepped V-pulley and then through a two-speed gearbox. Each stage of V-belt therefore gives a choice of high and low speed by the operation of the Gear Change Lever Handle mounted on the lefthand side of the head. The various speeds obtained by manipulation of the belt or gear change lever are clearly shown on a plate fitted on the righthand side of the head. IT IS IMPORTANT THAT THE GEAR CHANGE LEVER IS NOT OPERATED WHILST THE MACHINE IS RUNNING AS DAMAGE TO THE INTERNAL GEARS WILL OCCUR.

The standard Rotary Switch on this Machine enables the operator to instantly reverse the direction of the drill or tap when required.

N.B.—Speeds are increased by 20% if 60 cycle motors are used.

4. LUBRICATION :

The following routine should be carried out to obtain the greatest efficiency from this Machine.

GEARBOX: It is advisable to drain and replenish oil in gearbox every three months by removing drain plug, item number 111, and refilling with $\frac{1}{2}$ to $\frac{3}{4}$ of a pint of oil via filler plug, item number 25, on top of gearbox. Oil should be Wakefield 'Hyspin 55' or Shell 'Tellus 23' or similar viscosity. UNDER NO CIRCUMSTANCES MUST $\frac{3}{4}$ OF A PINT OF OIL BE EXCEEDED AS OVERHEATING WILL OCCUR.

BEARINGS: Grease Nipples, items number 51 and number 82, should not require any attention for a period of three months; thereafter one or two injections of Wakefield 'Spheerol S' or Shell 'Alvania Grease 3' every month should be adequate. Excessive greasing at these points may cause overheating of the bearings.

5. ADJUSTMENTS :

BELT TENSION: Belt tension may be regulated by loosening the two hexagon head screws, item number 16, adjusting the sliding motor plate assembly and retightening screws.

SPRING RETURN TO QUILL ASSEMBLY: To increase this tension wind the spring box, item number 64, in an anti-clockwise direction. This should be set to counterbalance the quill assembly and under no circumstances should be over-tightened as this can be a contributory cause of spring failure.

6. REPLACEMENTS :

LOWER QUILL SEAL: Item number 80 is replaced by simply prising the seal housing out of the quill with the aid of two screwdrivers and inserting a new assembly, all of which are interchangeable.

REMOVING GEARBOX: To repair any part of the gearbox it is advisable to extract the complete unit from the head. This can be carried out in the following manner:

- Drain oil through oil drain plug, item number 111.
- Remove belt cover and belt.
- Remove screws painted red, item number 13 (5 off).
- Remove Gear Lever Gate Cover Assembly, item number 72, Gear Change Lever, item number 70.
- Lift out complete gearbox.

DISMANTLING GEARBOX:

- Remove pulley.
- Remove screws, item number 90, holding gearbox and gearbox lid together.
- Prise gearbox and gearbox lid apart with the aid of two screwdrivers taking care to prise this off evenly. This will expose the mechanism inside the gearbox and careful study of the component parts in conjunction with the exploded drawing will enable any repairs or replacements to be carried out in an orthodox manner.

REPLACING RETURN SPRING:

- Remove small flat Spring, item number 30, and Spring-box Plunger, item 34.
- Remove domed nut and washer, item number 65 and 66, and gently pull out Spring-box cover, item number 64. When replacing the new spring make sure that the coils of the spring tighten from the centre in an anti-clockwise direction when looking into the spring-box.

REMOVING DRILLS, ETC.:

- Lower quill spindle assembly and lock in position by means of locking handle provided.
- Turn spindle so that slot is opposite slot in quill.
- Insert drift and remove drill.

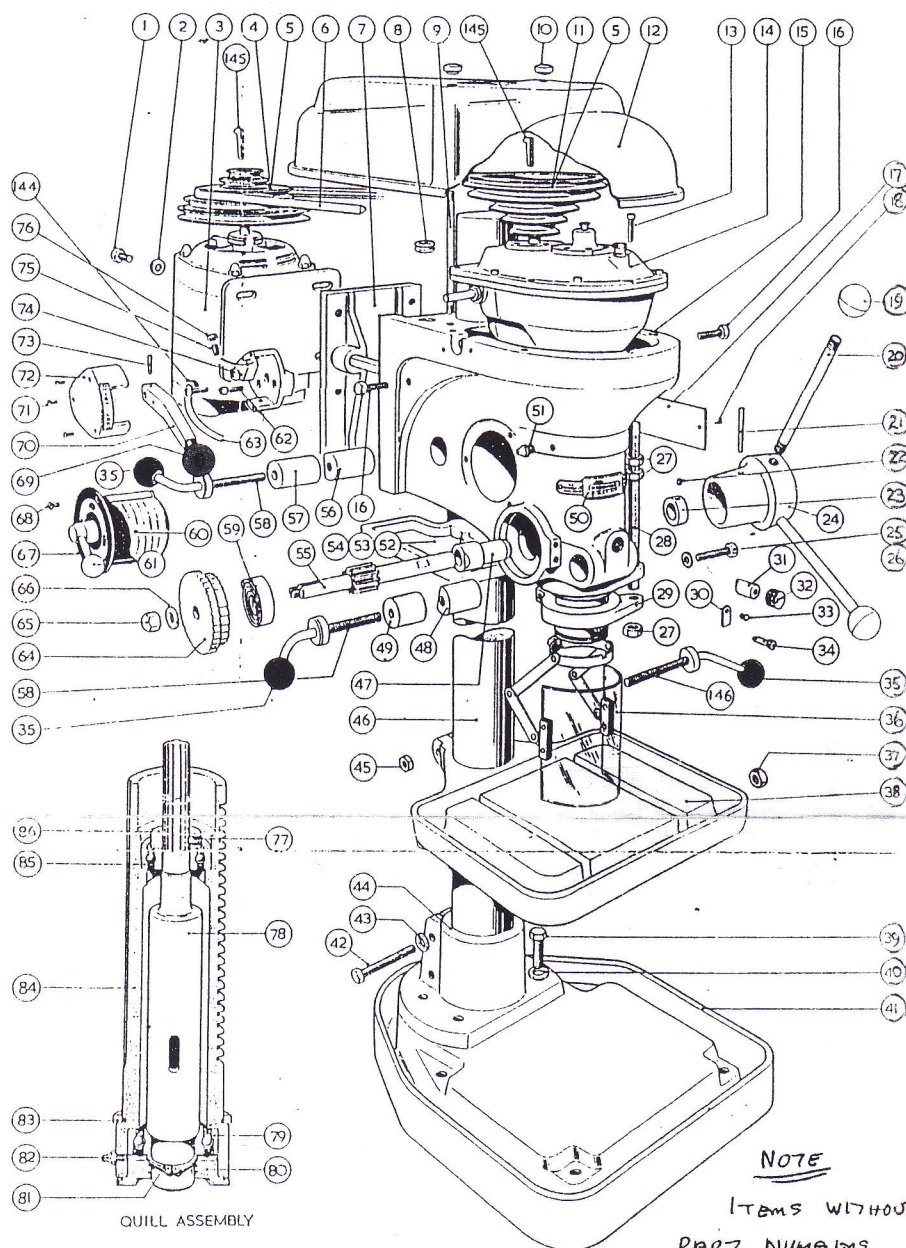
Instructions Including Parts List for Pedestal Drilling Machine M.B.4 and Column Type and M.F.4

MEDDINGS

Pedestal Type Mark II

PLEASE QUOTE PART NUMBERS AND
 NOT ITEM NUMBERS WHEN ORDERING
 SPARES

| Item No. | Part No. | Description | No. off |
|----------|----------------|--|---------|
| 1 | | $\frac{1}{16}$ " B.S.F. x $\frac{1}{4}$ " Lg. | |
| | | Hex. Hd. Setscrew | 4 |
| 2 | | $\frac{1}{16}$ " Washer | 4 |
| 3 | | $\frac{3}{4}$ h.p. Electric Motor | 1 |
| 4 | 258 | Motor Pulley | 1 |
| 5 | | $\frac{1}{4}$ " B.S.F. x $\frac{1}{4}$ " Lg. | |
| | | Allen Grub Screw | 2 |
| 6 | 300 | $\frac{1}{4}$ 35M 'Vec Belt | 1 |
| 7 | | Motor Plate Assembly | 1 |
| 8 | | Rubber Grommet | 2 |
| 9 | | Belt Cover Pillar | 2 |
| 10 | 9266 | Belt Cover Nut | 2 |
| 11 | 9395 | Gear Shaft Pulley | 1 |
| 12 | | Belt Cover | 1 |
| 13 | | $\frac{1}{8}$ " B.S.F. x 1" Lg. | |
| | | Cap Head Screw | 5 |
| 14 | | Gear Box Complete | 1 |
| 15 | | Head | 1 |
| 16 | | Motor Plate Locking Screw | 2 |
| 17 | | Instruction Plate | 1 |
| 18 | | Nameplate Fixing Screw | 2 |
| 19 | | $1\frac{1}{4}$ " dia. Black Knob | 3 |
| 20 | | Star Handle Spoke | 3 |
| 21 | | $\frac{1}{8}$ " dia. x 2" Lg. Mills Pin | 1 |
| 22 | 514 (10-19/12) | $\frac{1}{4}$ " B.S.F. x $\frac{1}{4}$ " Lg. | |
| | | Allen Grub Screw | 1 |
| 23 | | Starwheel Thrust Collar | 1 |
| 24 | | Starwheel Hub | 1 |
| 25 | | $\frac{1}{8}$ " B.S.F. x $1\frac{1}{2}$ " Lg. | |
| | | Hex. Hd. Bolt | 1 |
| 26 | | $\frac{1}{16}$ " Washer | 1 |
| 27 | | $\frac{1}{4}$ " B.S.F. Locknut | 3 |
| 28 | | Scale | 1 |
| 29 | | Scale Carrier | 1 |
| 30 | 293 | Spring Box Plunger Spring | 1 |
| 31 | | Quill Key | 1 |
| 32 | | Key retainer | 1 |
| 33 | | 2-B.A. x $\frac{1}{4}$ " Lg. Rd. Hd. Screw | 1 |
| 34 | | Spring Box Plunger | 1 |
| 35 | | Black Knob | 3 |
| 36 | 19465 | Chuck Guard | 1 |
| 37 | | $\frac{3}{8}$ " B.S.F. Nut | 2 |
| 38 | | Table | 1 |
| 39 | | $\frac{1}{4}$ " B.S.F. x $1\frac{1}{2}$ " Lg. | |
| | | Hex. Hd. Set Screw | 4 |
| 40 | | $\frac{1}{4}$ " Washer | 4 |
| 41 | | Base | 1 |
| 42 | | $\frac{3}{8}$ " B.S.F. x $2\frac{1}{2}$ " Lg. | |
| | | Hex. Hd. Screw | 2 |
| 43 | | $\frac{3}{8}$ " Washer | 2 |
| 44 | | Bolster | 1 |
| 45 | | $\frac{3}{8}$ " B.S.F. Nut | 1 |
| 46 | 20035/6 | F/B Column | 1 |
| 47 | | Quill Activating Gear Bush | 1 |
| 48 | | Locking Bush (Threaded) | 1 |
| 49 | | Locking Bush (Plain) | 1 |
| 50 | | Nameplate | 1 |
| 51 | 337 | $\frac{1}{4}$ " B.S.F. Hydraulic Nipple | 1 |
| 52 | | Drill Tray | 1 |
| 53 | | $\frac{3}{8}$ " B.S.F. x $1\frac{1}{2}$ " Lg. Bolt | 1 |
| 54 | | $\frac{3}{8}$ " Washer | 1 |
| 55 | | Quill Activating Gear | 1 |
| 56 | | Locking Bush (Threaded) | 1 |
| 57 | | Locking Bush (Plain) | 1 |
| 58 | | Locking Handle | 2 |
| 59 | 345 | Return Spring | 1 |
| 60 | | Switch | 1 |
| 61 | | Switch Lever Assembly | 1 |



NOTE

ITEMS WITHOUT

PART NUMBERS

ARE OBSOLETE

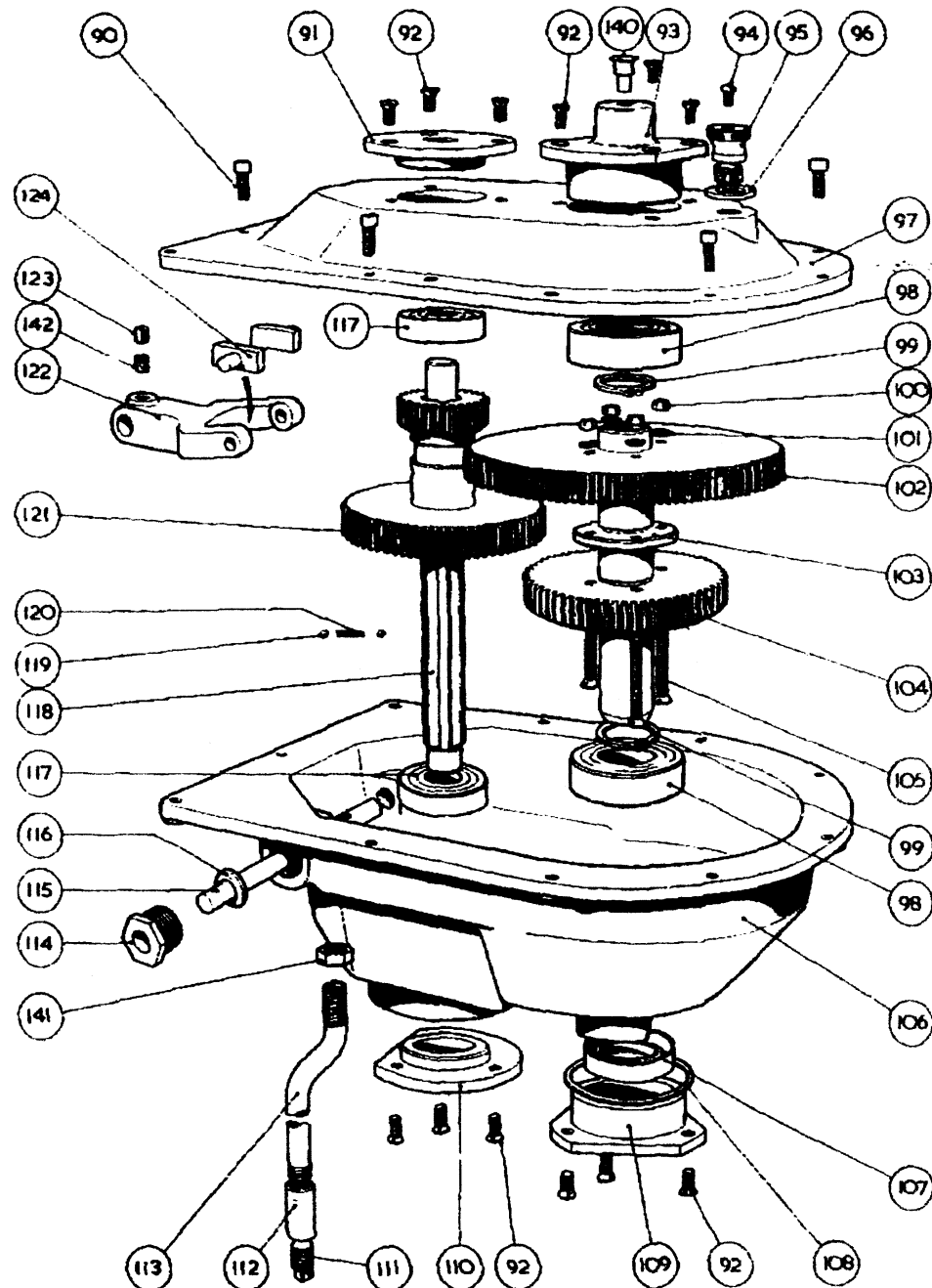
| Item No. | Part No. | Description | No. off | Item No. | Part No. | Description | No. off |
|----------|-----------------|--|---------|----------|----------------|---|---------|
| 62 | 5024 (10-65/12) | $\frac{1}{4}$ " B.S.F. x $\frac{1}{4}$ " Lg. | | 75 | | 2-B.A. Slotted Grub Screw | |
| | | Cap. Hd. Screw | 2 | 76 | 326 | 2-B.A. Lock Nut | |
| 63 | | Electric Cable | 1 | 77 | 514 (10-19/12) | $\frac{1}{4}$ " B.S.F. x $\frac{1}{4}$ " Lg. | |
| 64 | | Spring Box Cover | 1 | | | Allen Grub Screw | |
| 65 | | $\frac{1}{4}$ " B.S.F. Dome Nut | 1 | 78 | | No. 2 M.T. Spindle | |
| 66 | | $\frac{1}{4}$ " Washer | 1 | 79 | 312 | 25 m/m Angular Contact Ball Race | |
| 67 | | Switchplate (FWD-OFF-REV.) | 1 | 80 | 17452 | Quill Seal | |
| 68 | 5469 | 2-B.A. x $\frac{3}{8}$ " Lg. Csk. Hd. Screw | 3 | 81 | 18303 | 25 m/m External Circlip | |
| 69 | | $1\frac{1}{2}$ " Dia. Red Knob | 1 | 82 | 310 | 2-B.A. Nipple 5714 | |
| 70 | | Gear Lever | 1 | 83 | | Buffer Washer | |
| 71 | | 4-B.A. x $\frac{3}{8}$ " Lg. Rd. Hd. Screw | 3 | 84 | | Sleeve | |
| 72A | | Gear Index Plate | 1 | 85 | 70 | 17 m/m Light Type Ball Journal | |
| 72B | | Gear Lever Gate Cover | 1 | 86 | 505 | Ball Race Collar | |
| 72C | | Fixing Screw | 2 | 144 | | $\frac{3}{8}$ " B.S.C. Bush | |
| 73 | | $\frac{1}{8}$ " Dia. x $\frac{1}{4}$ " Lg. Taper Pin | 1 | 145 | 20267 | $\frac{1}{8}$ " G.S.T. x $1\frac{1}{2}$ " Lg. Key | |
| 74 | | Gear Lever Gate Body | 1 | 146 | | Locking Handle | |

W. J. MED

Meddings Machine Tools Ltd.,

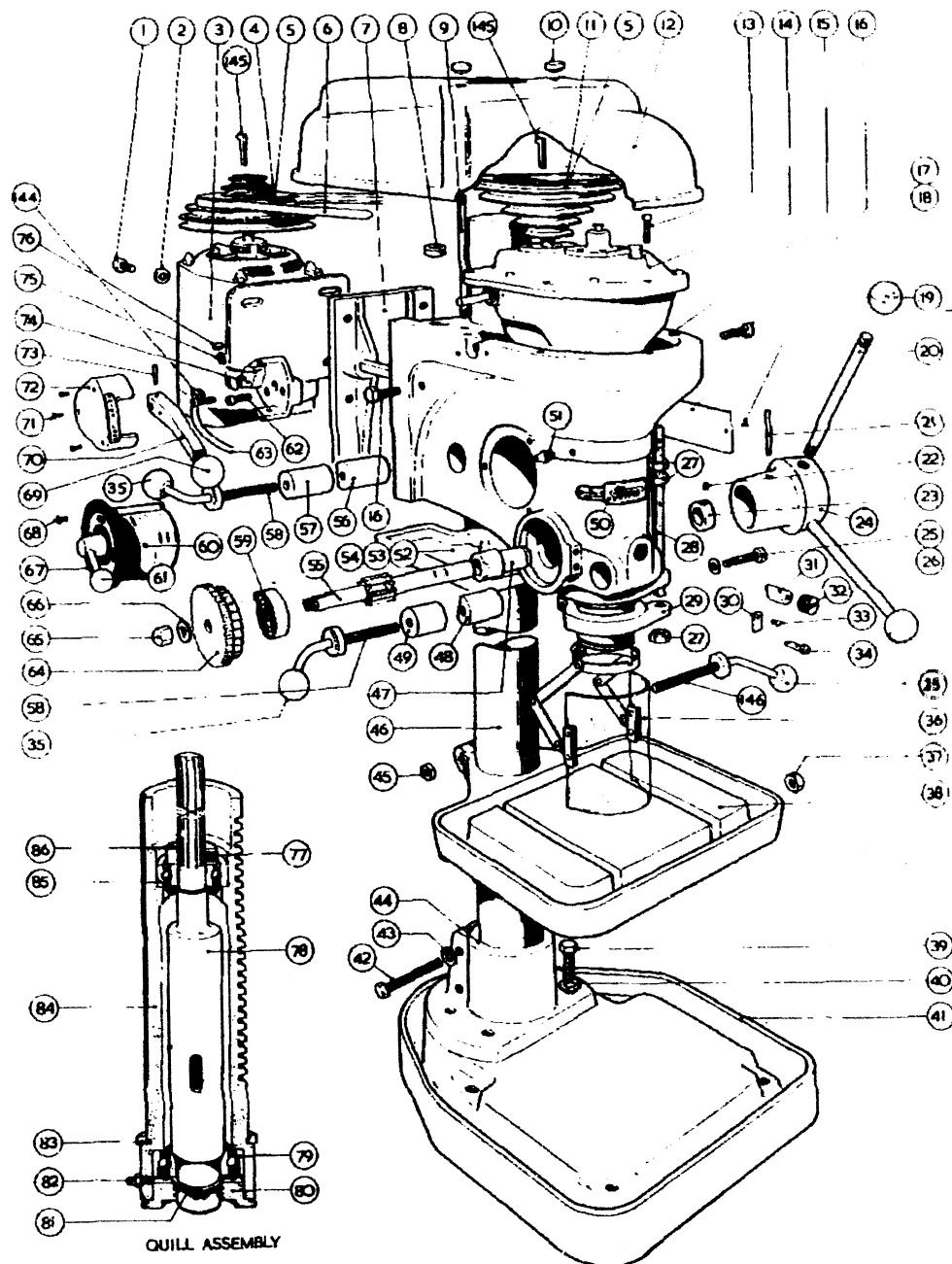
ENGLAND

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GEAR BOX

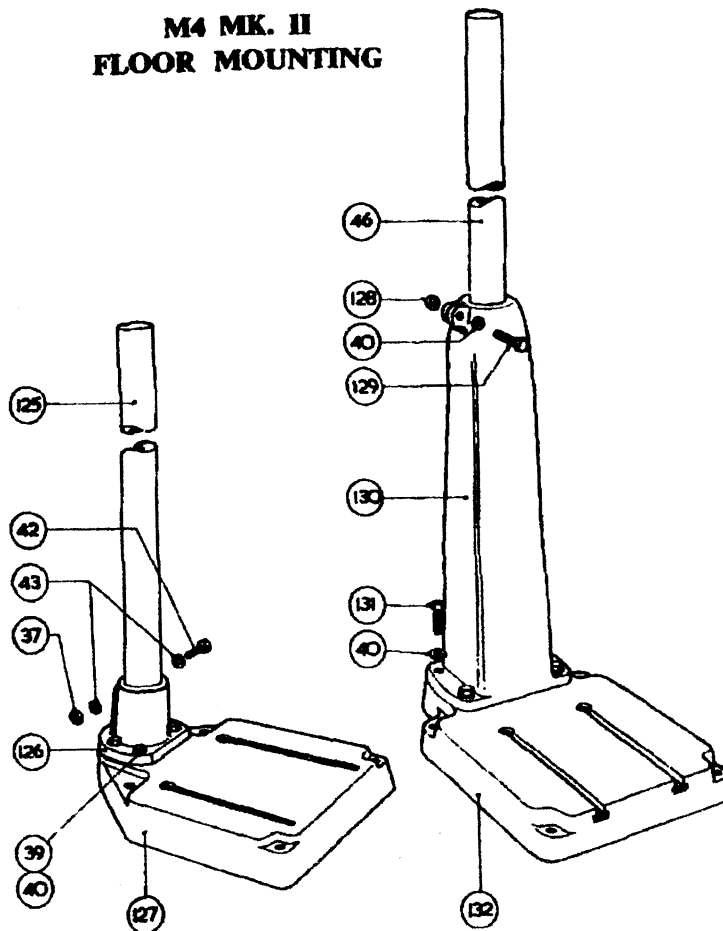
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|----------|----------------|---|---------|-----|----------------|---|
| 90 | 304 ND | $\frac{1}{8}$ " B.S.F. x $\frac{1}{2}$ " Lg. Cap Head Screw | 5 | 106 | 262 SDG | Gear Box |
| 91 | 283 SDG | Gearshaft Upper Seal | 1 | 107 | 302 ND | Oil Seal W.15709839 |
| 92 | 5469 ND | 2-B.A. x $\frac{1}{2}$ " Csk. Hd. Screw | 12 | 108 | 9384/MF5/Mk.II | Sealing Ring |
| 93 | 9137/MF5/Mk II | Driving Sleeve Upper Seal | 1 | 109 | 284 SDG | Driving Sleeve Lower Seal |
| 94 | 79 ND | Vent Screw (Remove before using) | 1 | 110 | 281 SDG | Gearshaft Lower Seal |
| 95 | 346 SDG | Oil Filler Plug | 1 | 111 | 313 ND | $\frac{1}{4}$ " B.S.P. Plug |
| 96 | 5439 JS | Leather Washer | 1 | 112 | 296 ND | $\frac{1}{4}$ " B.S.P. Socket |
| 97 | 264 SDG | Gear Box Cover | 1 | 113 | 298 SDG | Oil Drain |
| 98 | 68A ND | 25 m/m Light Type Ball Journal | 2 | 114 | 289 SDG | Gear Box Gland |
| 99 | 5430 ND | 25 m/m External Circlip | 2 | 115 | 279 SDG | Selector Shaft |
| 100 | 306 ND | 2-B.A. Oddie Nut | 4 | 116 | 319 ND | High Pressure Twist |
| 101 | 307 ND | 2-B.A. Washer (small) | 4 | 117 | 509 ND | $\frac{1}{2}$ " Bore Light Type Ball Journal |
| 102 | 267 SDG | $5\frac{1}{2}$ " P.C.D. Gear | 1 | 118 | 273 SDG | Gearshaft |
| 103 | 290 SDG | Driving Sleeve | 1 | 119 | 301 ND | $\frac{1}{2}$ " dia. Ball |
| 104 | 268 SDG | $3\frac{1}{2}$ " P.C.D. Gear | 1 | 120 | 311 ND | Gear Catch Spring |
| 105 | 305 ND | 2-B.A. x $1\frac{1}{2}$ " Lg. Csk. Hd. Screw | 4 | 121 | 286 SDG | Driving Gears |
| | | | | 122 | 257 SDG | Selector Lever |
| | | | | 123 | 514 ND | $\frac{1}{8}$ " B.S.F. x $\frac{1}{2}$ " Lg. Allen Grub Screw |
| | | | | 124 | 271 SDG | Selector Pad |
| | | | | 140 | 1102/ND | No. 3 Flip Flap Oiler |
| | | | | 141 | 9383/ND | $\frac{1}{2}$ " B.S.P. Backnut |
| | | | | 142 | 6515/ND | $\frac{1}{8}$ " B.S.F. x $\frac{1}{2}$ " Lg. Grub Screw |



| Item No. | Part No. | Description | No. off | Item No. | Part No. | Description | No. off |
|----------|----------|---------------------------------------|---------|----------|----------------|---|---------|
| 62 | 5024 ND | 1/4" B.S.F. x 1/2" Lg. Cap. Hd. Screw | 2 | 75 | 138 ND | 2-B.A. Slotted Grub Screw | 2 |
| 63 | 13948/ND | Electric Cable | 1 | 76 | 326 ND | 2-B.A. Lock Nut | 2 |
| 64 | 266 SDG | Spring Box Cover | 1 | 77 | 514 ND | 1/4" B.S.F. x 1/2" Lg. Allen Grub Screw | 1 |
| 65 | 291 SDG | 1/4" B.S.F. Dome Nut | 1 | 78 | 251/4/SDG | No. 2 M.T. Spindle | 1 |
| 66 | 85 ND | 1/4" Washer | 1 | 79 | 312 ND | 25 m/m Angular Contact Ball Race | 1 |
| 67 | 328/SDG | Switchplate (FWD-OFF-REV.) | 1 | 80 | 288 SDG | Quill Seal | 1 |
| 68 | 5469 ND | 2-B.A. x 1/2" Lg. Csk. Hd. Screw | 3 | 81 | 5430 ND | 25 m/m External Circlip | 1 |
| 69 | 9624 ND | 1 1/2" Dia. Red Knob | 1 | 82 | 310 ND | 2-B.A. Nipple 5714 | 1 |
| 70 | 232 SDG | Gear Lever | 1 | 83 | 309 SDG | Buffer Washer | 1 |
| 71 | 6506 ND | 4-B.A. x 1/2" Lg. Rd. Hd. Screw | 3 | 84 | 253 SDG | Sleeve | 1 |
| 72A | 331/SDG | Gear Index Plate | 1 | 85 | 70 ND | 17 m/m Light Type Ball Journal | 1 |
| 72B | 322/SDG | Gear Lever Gate Cover | 1 | 86 | 252 SDG | Ball Race Collar | 1 |
| 72C | 1791/ND | Fixing Screw | 2 | 144 | 109/ND | 1/4" B.S.C. Bush | 1 |
| 73 | 499 ND | 1/4" Dia. x 1/2" Lg. Taper Pin | 1 | 145 | 9954/ND | 1/4" G.S.T. x 1 1/2" Lg. Key | 2 |
| 74 | 321 SDG | Gear Lever Gate Body | 1 | 146 | 12347/SD/Mk II | Locking Handle | 1 |

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 IPSWICH ROAD — TRADING ESTATE — SLOUGH SL1 4EH ENGLAND

M4 MK. II FLOOR MOUNTING



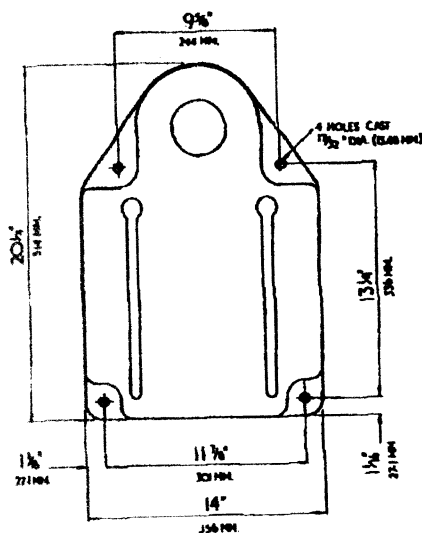
**ROUND COLUMN
FLOOR TYPE**

BOX PEDESTAL FLOOR TYPE

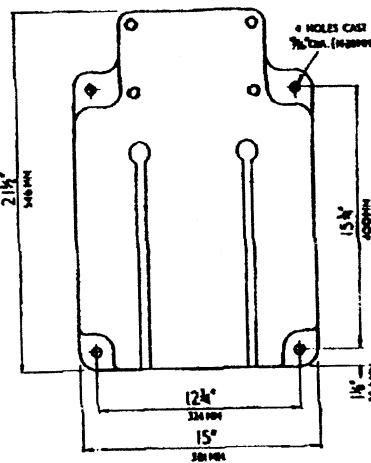
| Item No. | Part No. | Description | No. off | Item No. | Part No. | Description | No. off |
|----------|----------|--------------|---------|----------|----------|--|---------|
| 125 | 37S SD | 5 ft. Column | 1 | 128 | 1055/ND | $\frac{1}{2}$ " B.S.F. Nut | 1 |
| 126 | 2C SD | Bolster | 1 | 129 | 6207/ND | $\frac{1}{2}$ " B.S.F. x $2\frac{1}{4}$ " Long Hex. Hd. Bolt | 1 |
| 127 | 1A SD | Base | 1 | 130 | 1937/BP | Box Pedestal | 1 |
| | | | | 131 | 5982/ND | $\frac{1}{2}$ " B.S.F. x $1\frac{1}{2}$ " Lg. Hex. Hd. Screw | 4 |
| | | | | 132 | 1617/H2 | Base (Tee-Slotted) | 1 |

BASE FIXING BOLT CENTRES

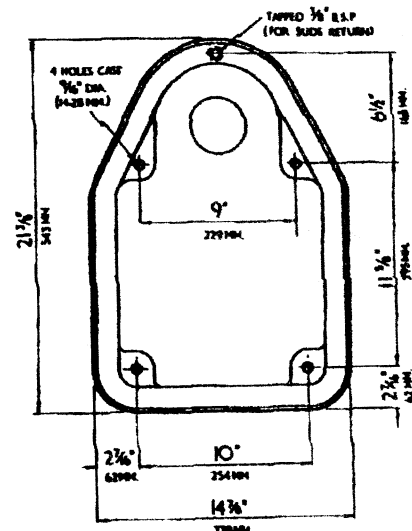
**M.F.4/MK. II
ROUND COLUMN FLOOR TYPE**

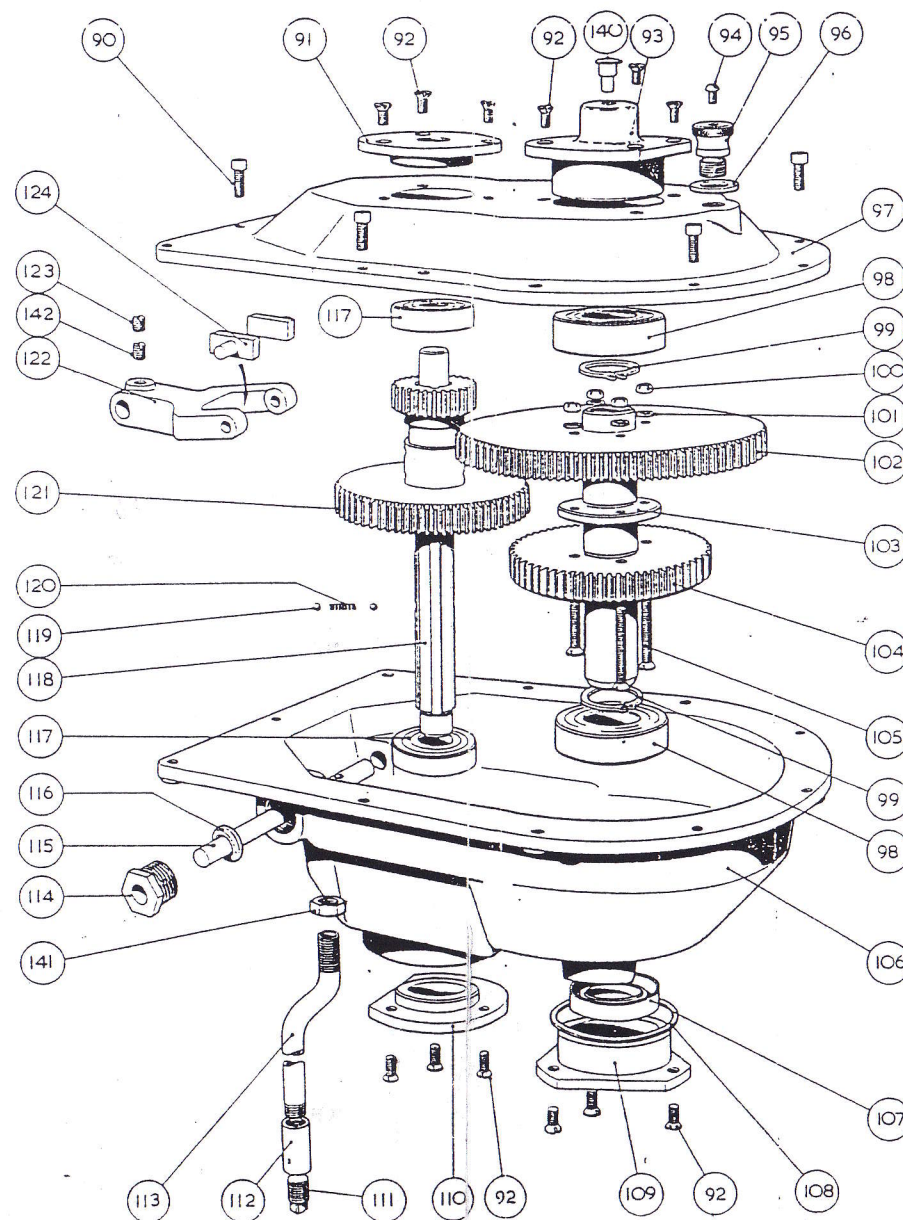


**M.F.4/MK. II
BOX PEDESTAL FLOOR TYPE**



**M.B.4/MK. II
BENCH TYPE**





GEAR BOX

| Item No. | Part No. | Description | No. off |
|----------|---------------|---|---------|
| 90 | | $\frac{1}{16}$ " B.S.F. x $\frac{1}{4}$ " Lg. Cap Head Screw | 5 |
| 91 | | Gearshaft Upper Seal | 1 |
| 92 | 5469 | 2-B.A. x $\frac{1}{8}$ " Csk. Hd. Screw | 12 |
| 93 | | Driving Sleeve Upper Seal | 1 |
| 94 | | Vent Screw (Remove before using) | 1 |
| 95 | | Oil Filler Plug | 1 |
| 96 | | Leather Washer | 1 |
| 97 | | Gear Box Cover | 1 |
| 98 | | 25 m/m Light Type Ball Journal | 2 |
| 99 | 18308 | 25 m/m External Circlip | 2 |
| 100 | 306 | 2-B.A. Oddie Nut | 4 |
| 101 | | 2-B.A. Washer (small) | 4 |
| 102 | 267 | $5\frac{1}{16}$ " P.C.D. Gear | 1 |
| 103 | | Driving Sleeve | 1 |
| 104 | 268 | $3\frac{1}{2}$ " P.C.D. Gear | 1 |
| 105 | 19596 | 2-B.A. x $1\frac{1}{4}$ " Lg. Csk. Hd. Screw | 4 |
| 106 | | Gear Box | 1 |
| 107 | | Oil Seal W.15709839 | 1 |
| 108 | | Sealing Ring | 1 |
| 109 | | Driving Sleeve Lower Seal | 1 |
| 110 | | Gearshaft Lower Seal | 1 |
| 111 | 313 | $\frac{1}{8}$ " B.S.P. Plug | 1 |
| 112 | | $\frac{1}{8}$ " B.S.P. Socket | 1 |
| 113 | | Oil Drain | 1 |
| 114 | | Gear Box Gland | 1 |
| 115 | | Selector Shaft | 1 |
| 116 | | High Pressure Twist | 13" |
| 117 | 509 | $\frac{1}{8}$ " Bore Light Type Ball Journal | 2 |
| 118 | | Gearshaft | 1 |
| 119 | 301 | $\frac{1}{8}$ " dia. Ball | 2 |
| 120 | 311 | Gear Catch Spring | 1 |
| 121 | 286 | Driving Gears | 1 |
| 122 | | Selector Lever | 1 |
| 123 | 514 (10-1912) | $\frac{1}{4}$ " B.S.F. x $\frac{1}{4}$ " Lg. Allen Grub Screw | 2 |
| 124 | 271 | Selector Pad | 2 |
| 140 | | No. 3 Flip Flap Oiler | 1 |
| 141 | | $\frac{1}{8}$ " B.S.P. Backnut | 1 |
| 142 | 6515 | $\frac{1}{4}$ " B.S.F. x $\frac{1}{8}$ " Lg. Grub Screw | 1 |