SUPER 7 LATHE

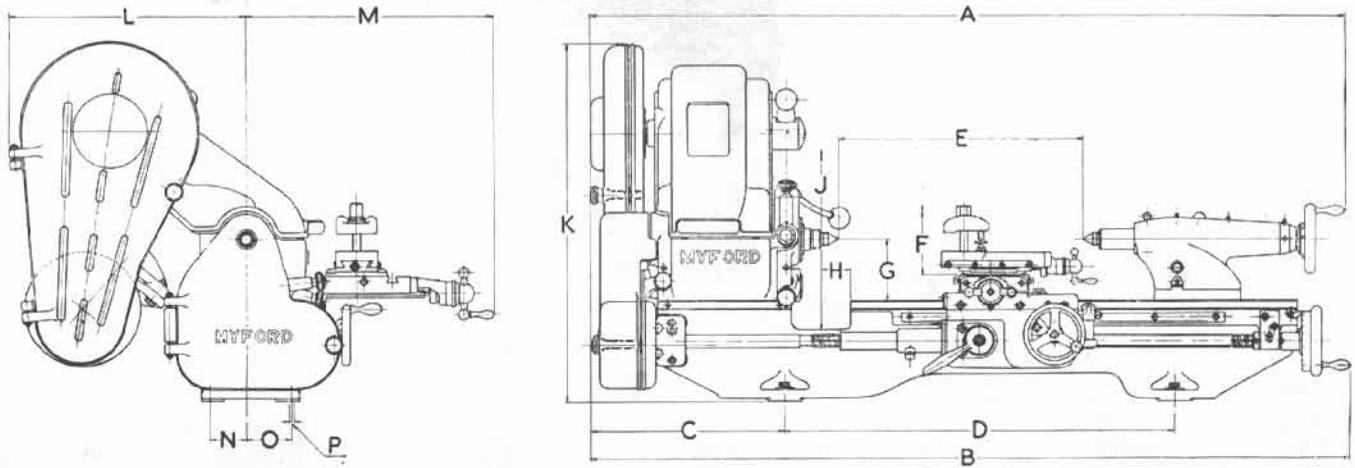


Fig. 1 Showing overall measurements for installation purposes

A	46½" or 58½"	1181 or 1486 mm
B	43½" or 55½"	1105 or 1410 mm
C	11¼"	286 mm
D	22¼" or 31¼"	565 or 794 mm
E	19" or 31"	485 or 787 mm
F	4" dia.	101 mm dia.
G	3½" C.H.	89 mm
H	1½"	38 mm
J	10" dia.	254 mm dia.
K	20½"	521 mm
L	13½"	343 mm
M	15¾" Max.	400 mm
N	2 1/16"	52·5 mm
O	2 9/16"	65 mm
P	For 5/16" dia. Bolts	For 8 mm dia. Bolts

MYFORD LATHES pass rigid inspection tests before shipment, and in order to maintain this built-in accuracy, they must be properly installed.

DO NOT OPERATE THE LATHE UNTIL . . . .

* **The machine has been correctly installed and levelled, and it has been thoroughly cleaned and lubricated.**

* **The instructions have been carefully read, and the controls and adjustments are understood.**

MACHINE SERIAL No.

In the event of queries, or orders for spares, please state the number of the machine, as shown on the front of the bed at the left hand end of the facing for the rack, Fig. 2.

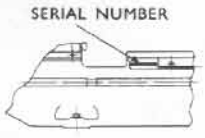


Fig. 2

We are always pleased to answer any technical question in connection with our Products. When writing to the Works be sure to state the Serial letter and number of your Lathe.

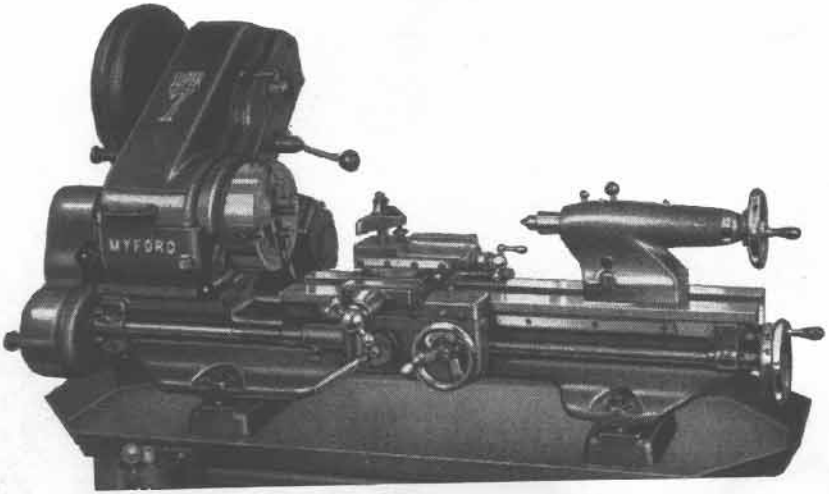
Illustrations not binding in detail

THE MYFORD SUPER 7 LATHE

The MYFORD SUPER 7 Lathe illustrated is an excellent example of the modern small high speed screw cutting Lathe.

Outstanding features include a fine Headstock with hardened tapered spindle; 14 Spindle Speeds (25—2,150 r.p.m.); built-in clutch unit; tailstock with long barrel control, multi-thread feed and ball thrust; self-contained motor drive unit; large tee-slotted boring table and the gap which allows work to be swung which is larger than would normally clear the Lathe ways.

Note the complete guarding of the drive belts and changewheels, and the general heavy construction.



SPECIFICATION

Distance between centres	19 inch
Swing over bed	7 inch
Swing in Gap	10 inch
Swing over Boring Table	4⅛ inch
Hole through Spindle	19/32 inch
Spindle Bored	No. 2 M.T.
Spindle Speeds (fourteen)	25—2,105 r.p.m.
Standard Finest Feed	·0037 in. per rev.
Boring Table Travel	6⅜ inch
Top Slide Travel	2¼ inch
Leadscrew	¾ in. dia. 8 T.P.I. Acme
Tailstock barrel bored	No. 2 M.T.
Tailstock barrel travel	2¾ inch
Overall length	3 ft. 10½ inch
Overall width	2 ft. 3½ inch
Nett weight (including motor) approx.	245 lb.
Nett weight on cabinet (inc. motor) approx.	365 lb.

A ½ h.p. 3 phase or ¾ h.p. single phase 1420/1450 r.p.m. full load speed resilient mounted motor is recommended. To ensure satisfaction, a suitable motor can be supplied by the factory. State whether A.C. or D.C., exact voltage and phase.

INSTALLATION

Unpacking

Great care is taken in the packing of SUPER 7 Lathes to ensure that the user will receive the Lathe in perfect condition, and it is important that unpacking should be carried out with the same care in order to avoid possible damage.

Shortages

Check the standard equipment supplied with the machine, as listed, and illustrated below.

All loose packing material (such as wood wool) should be set aside and thoroughly searched in the case of apparent shortages. If the missing items do not come to light, report the shortages immediately to the supplier from whom the machine was purchased.

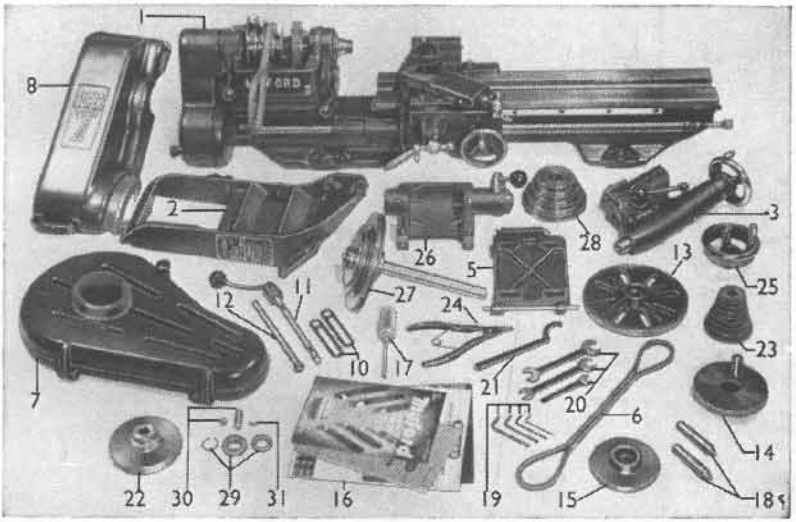


Illustration shows Super 7 Lathe with Standard equipment dismantled for packing.

L'illustration montre le tour Super 7 avec equipment standard démonté en vue de l'emballage.
Die Abbildung zeigt Super 7—Drehbank mit Standard-Ausrüstung, demontiert zum Verpacken.
La fotografia muestra el torno Super 7 con el equipo standard preparado para su embalaje.
A ilustração mostra o Torno Super 7 com o equipamento normal desmontado para ser embalado.

DISMANTLED EQUIPMENT

1. Lathe partially dismantled for packing.
2. Countershaft Arm.
3. Tailstock.
5. Motor Platform.
6. Vee Belt for motor drive.
7. Motor drive belt guard.
8. Headstock belt guard.
10. 2 Tie bars for motor platform.
11. Cam shaft and lever assembly.
12. Pivot shaft for swinghead.
25. Leadscrew handwheel.
26. Swinghead and clutch lever assembly.
27. Clutch, pulley and countershaft assembly.
28. Countershaft vee cone pulley.
29. Ball thrust bearing, thrust collar and cir-clip for countershaft.
30. Steel ball and push bar for countershaft.
31. Woodruff key for countershaft.

STANDARD EQUIPMENT (LOOSE)

13. 6¾" dia. Faceplate.
14. Driver plate with peg.
15. Not now supplied.
16. Descriptive matter, Installation Booklet etc.
17. Oil gun.
18. Soft and Hard centres.
19. 4 Hexagon keys.
20. 3 Spanners.
21. "C" Spanner.
22. Motor Pulley.
23. 8 Changewheels (To complete standard set of 14-6 are mounted on the machine) (except Super 7B Quick-change Lathe).
24. Cir-clip pliers (not now supplied).

For checking only. Do not use these numbers for ordering.

MYFORD SUPER 7 3½" CENTRE LATHE

PIECES DEMONTEES

1. Tour partiellement démonté en vue de l'emballage
2. Bras de renvoi
3. Poupée mobile
5. Semelle pour moteur
6. Courroie trapézoïdale pour moteur
7. Capot de protection de la courroie moteur
8. Capot de protection de la poupée
10. 2 entretoises pour semelle de moteur
11. Arbre à came et levier
12. Axe de bascular tendeur
25. Volant de vis-mère
26. Tête pivotante et levier d'embrayage
27. Poulie d'embrayage et arbre-renvoi
28. Poulie à gorges étagée d'arbre renvoi
29. Palier de butée, collier de butée et cir-clip d'arbre renvoie
30. Bille d'acier et barre poussoir pour arbre renvoi
31. Clavette d'arbe renvoi

EQUIPMENT STANDARD (libre)

13. Plateau à rainures (170 mm ø)
14. Plateau pousse-toc
15. Pas fourni
16. Littérature, notice de montage etc. . .
17. Pompe à huile
18. Pointes douce et dure
19. 4 clés B.T.R.
20. 3 clés plates
21. Clé "C"
22. Poulier moteur
23. 8 roues de rechange (pour completer le jeu standard de 14—6 sont montées sur la machine) (excepté pour le tour SUPER 7B NORTON)
24. Princes pour circlips.

Pour contrôle seulement—Ne pas utiliser ces chiffres pour commande.

DEMONTIERTE AUSRUSTUNGSTEILE

1. Drehbank zum Teil demontiert, wie sie zum Versand kommt.
2. Antriebswippe für Vorgelege.
3. Reitstock
5. Wippe zu Elektromotor.
6. Keilriemen zu Motor-Vorgelege.
7. Schutzharbe zu Motor-Reimen.
8. Schutzhaube zu Spindelstockantrieb.
10. 2 Fixationsschienen zu Motorenwippe.
11. Riemenpannhebel.
12. Gelenksrift zu Vorgelegewippe.
25. Handrad zu Leitspindel.
26. Wippengehäuse mit Kupplungshebel.
27. Kupplungsriemenscheibe und Vorgelegewelle.
28. Keilriemenstufenscheibe zu Vorgelegewelle.
29. Druckkugellager, Druckring und Federring zu Vorgelegewelle.
30. Stahlkugel und Druckstift zu Vorgelegewelle.
31. Keil zu Vorgelegewelle.

STANDARD-AUSRUSTUNGSTEILE

13. Planscheibe (170 mm Durchmesser).
14. Mitnehmerschheibe mit Stift.
15. Nicht verschafft.
16. Katalog, Aufstellungs—und Bedienungsanweisung.
17. Oelspritze.
18. Je eine harte und eine weiche Spitze.
19. 4 Inbus-Schlüssel.
20. 3 Doppelgabelschlüssel.
21. Hakenschlüssel.
22. Motor-Keilriemenscheibe.
23. 8 Wechselräder (zur Komplettierung des Standardsatzes von 14,—6 davon auf der Maschine montiert) ausgenommen die SUPER 7B Drehbank mit Schnellwechselräderkasten.
24. Federringzange.

Diese Zahlen 1 – 31 dienen nur zur Kontrolle beim Auspacken.
Bitte beim Bestellan keinen Gebrauch dieser Nummern machen.

EQUIPO DESMONTADO

1. Torno desmontado parcialmente, listo para ser embalado.
2. Brazo del eje auxiliar.
3. Cabezal movil.
5. Soporte del motor.
6. Correa trapezoidal.
7. Protección de la correa del motor.
8. Protección de la correa del cabezal.
10. Dos tirantes de sujección del soporte del motor.
11. Eje de leva con palanca, conjunto.
12. Pivote—eje para el conjunto oscilatorio.
25. Volante.
26. Conjunto de Cabezal y palanca de embrague.
27. Conjunto de polea de embrague y arbol de transmission.
28. Polea cónica para transmisión trapezoidal.
29. Cojinete de empuje a bolas, abrazadera y clip circular para àrbol de transmission.
30. Bola de acero y barra de empuje del arbol de transmisión.
31. Llave "woodruff" para del árbol de transmisión.

EQUIPO STANDARD (INDEPENDIENTE)

13. Plato plano (170 mm. de diametro).
14. Plato para utilizar contrapunto.
15. No ahora suministrado.
16. Información de montaje y descripciones, instrucciones, etc.
17. Pistola de aceite.
18. Puntos; duro y blando.
19. 4 llaves exagonales.
20. 3 llaves fivas.
21. Llaves en "C".
22. Polea del motor.
23. 8 Piniones (Para completar el juego de 14—6 ya están montados en el torno) (Salvo el torno SUPER 7B Quick-Change).
24. Alicates para clips circulares.

Para Comprobacion Solamente
No Utilizar Estos Numeros Para Pedir Piezas.

EQUIPAMENTO DESMONTADO

1. Torno parcialmente desmontado para embalagem.
2. Braço do contra-veio.
3. Cabeçote móvel.
5. Base do motor.
6. Correia trapezoidal para accionamento do motor.
7. Resguardo da correia de accionamento do motor.
8. Resguardo da correia do cabeçote.
10. 2 barras de união para a plataforma do motor.
11. Dispocicão de veio e alavanca para corrigir a tensão da correia.
12. Eixo de pivote para a cabeça giratória.
25. Roda de avanço.
26. Cabeça oscilante e alavanca de embraiagem.
27. Roda de embraiagem e contraveio.
28. Roldana conica em V para o contraveio.
29. Rolamento de pressão, colar de pressão e rententor do contraveio.
30. Esfera de aço a barra impulsora para o contraveio.
31. Chaveta semi-redonda.

EQUIPAMENTO NORMAL (Peças soltas)

13. Prato liso de 170 m/m de diametro.
14. Prato de transmissão com cavilah.
15. No fornecido.
16. Matéria descritiva, livrete de instalação, etc.
17. Pistola para óleo.
18. Pontos macios e rijos.
19. 4 chaves hexagonais.
20. 3 chaves de boca.
21. Chave de gancho.
22. Polie do motor.
23. 8 rodas de muda (para completar o jogo Standard de 14—6 são montadas na máquina) (excepto paro o Super 7B com caixa rápida-Norton).
24. Alicate do retentor do contraveio.

Apenas Para Identifição Noã Usar Éstes Números
Para Encomendar.

Cleaning

Myford machines are shipped with all parts protected by a rust preventative; all traces of this should be removed with either petrol or paraffin.

DO NOT MOVE ANY PART OF THE MACHINE UNTIL ALL OF THESE SURFACES HAVE BEEN THOROUGHLY CLEANED AND OILED

ASSEMBLY INSTRUCTIONS FOR MOTORISING EQUIPMENT

a Before mounting the countershaft arm, figure 3, remove the outer hexagon nut and washer (Section Q. Part Nos. 61 & 62) from the $\frac{7}{16}$" B.S.F. stud in the bed and screw on the inner nut as far as it will go, making sure that the inner washer is in position on the stud. Mount the countershaft arm onto the back of the headstock, using the four $\frac{1}{4}$" B.S.F. x $\frac{7}{8}$" Hexagon head screws which are provided. At this stage the screws must be only lightly tightened.

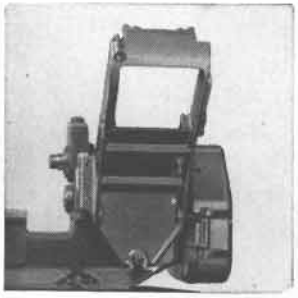


Fig. 3

Fig. 4

b Remove the hexagon screw and washer from the swing head pivot shaft. (Section Q. Part Nos. 39, 42 & 71) and insert the pivot shaft into the upper hole in the countershaft arm. Looking from the BACK of the machine this should be entered from the left, with the tapped hole in the pivot shaft entering first. Hold the swing head in position and pass the swing pin through the left hand bearing only, see figure 4. Hang the two tie bars for the motor platform onto the swing pin and pass the latter through the right hand bearings in the swing head and countershaft arm, leaving roughly $\frac{3}{8}$" projecting at the left hand end. Do not tighten the grub screw in the left hand countershaft arm boss at this stage.

c Insert the cam shaft and lever assembly. (Section Q. Part Nos. 51 & 40) into the lower hole in the countershaft arm. Looking from the BACK of the machine this is again entered from the left. Pass the cam shaft right through and locate by means of the grub screw in the right hand bearing in the countershaft arm.

d Mount the motor drive belt guard in position and secure by means of the $\frac{1}{4}$" B.S.F. x $1\frac{1}{4}$" cap head screw. Insert the $\frac{1}{4}$" B.S.F. x $\frac{3}{4}$" hexagon head screw through the slot in the guard backplate, into the end of the swing head pivot shaft, (Section Q. Part No. 39), ensuring that there is a washer on each side of the guard backplate. See figure No. 5. Adjust the position of the pivot shaft endwise, so that the washer is trapped between the end of the shaft and the guard backplate. Tighten the grub screw in the left hand boss of the countershaft arm to secure the pivot shaft.

e Remove the tape from the end of the countershaft and check that the steel ball and push bar (Section Q. Part Nos. 116 & 117) are in position, the ball in first and the push bar projecting. Insert the countershaft (shaft, primary drive pulley, clutch, assembly) into the left hand bearing of the swing head, looking from the FRONT of the machine. When the shaft is projecting through the bearing, place in position, first the three parts of the ball thrust bearing (Section Q. Part No. 99) then the collar (Part No. 100). Spring open the cir-clip (Part No. 101) and slip it over the shaft. (See figure No. 6.)

Fig. 5

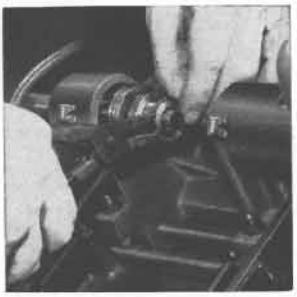


Fig. 6

Place the pulley, with the vee belt in one of the grooves, on the shaft and push the shaft to the right, (looking from the FRONT). Before easing the shaft into the right hand bearing, check that the Vee belt and Push Bar are both in place.

With the clutch operating lever and knob (Section Q. Part No. 94) in the position shown in figure No. 8 (below) and the pulley as far to the right as possible, push the shaft through. When the Keyway in the shaft becomes fully exposed rotate the pulley to line up the Keyways and insert the Woodruff Key, ensuring that the cir-clip is to the left of it. Push the shaft through as far as it will go and locate the cir-clip in the groove provided. N.B. Any other position of the clutch operating lever will prevent the shaft from taking up its correct position, consequently the cir-clip will not enter its groove.

g Move the pulley over to the left (looking from the FRONT) until it is approximately $\frac{5}{16}$" away from the collar (Part No. 100). Tighten the grub screw to secure the pulley to the shaft.

h To ensure the correct alignment of the countershaft and headstock spindle pulleys, place a straight edge across the face of the headstock pulley and adjust the position of the countershaft arm so that the headstock and countershaft cone pulleys are parallel. See figure No. 8. N.B. During this operation it may be necessary to adjust the position of the countershaft cone pulley, as well as the position of the countershaft arm to ensure correct alignment.

After setting, tighten the four hexagon head screws which secure the countershaft arm and the grub screw in the countershaft cone pulley.

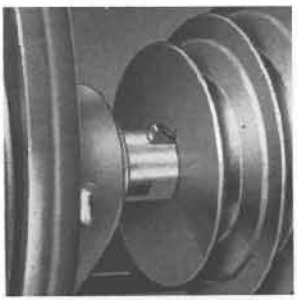


Fig. 7

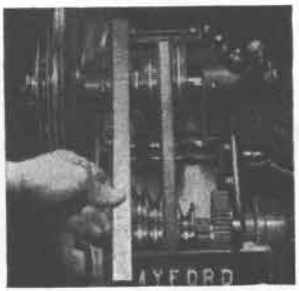


Fig. 8

i Before proceeding further with the assembly, check the clutch adjustment. See page 27.

j Adjust the position of the inner hexagon nut on the $\frac{7}{16}$" B.S.F. Stud at the bottom of the countershaft arm, so that the washer is just trapped finger tight. Over tightening will cause straining so that misalignment of the headstock may ensue if the headstock is jolted at some future date. Replace the outer washer and the outer hexagon nut on this stud and lock tight.

k Position the headstock drive belt so that it is in matching grooves of the headstock and the countershaft vee cone pulleys. Push the cam backwards and downwards against the stop so that the cam shaft is in the full lift position. Check the belt tension which should be correct, having been set at the factory, but if any adjustment is required, adjust the tensioning screws (Section Q. Part No. 57) until the slack of the belt allows approximately $\frac{1}{2}$" total movement when lightly oscillated by the thumb and forefinger. See figure No. 9. This will provide an initial setting which can be increased if slip is experienced when the machine is operated.

Fig. 9

l Assemble the motor to the motor base ensuring that faces *A* and *B* are parallel and the dimensions given are not exceeded. See figures Nos. 10 & 11.

m Insert the motor base swing pin into the $\frac{3}{8}$" dia. bore near the lower end of the countershaft arm, from the left hand end; hold the motor and base assembly in position, with the base plate uppermost, and pass the swing pin through both bearings of the motor base and into the right hand bore in the countershaft arm. See figure No. 12. Tighten the grub screw to secure the swing pin.

n Insert the motor base clamp screw (Section Q. Part Nos. 41, 42, 29 & 52) to hold the motor base locked to the countershaft arm. Enter from the right hand end (looking from the BACK of the machine), inserting it through the hole provided in the primary drive guard backplate. N.B. The position of the guard may need adjustment to enable the clamp screw to be inserted. Insertion from this end will facilitate subsequent adjustment from the front of the machine.

Fig. 10

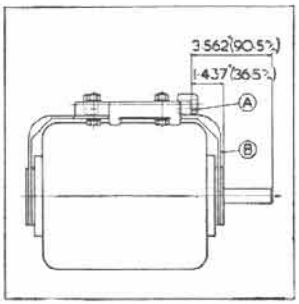


Fig. 11

o Place the motor pulley in position, on the motor shaft, with the large step outwards, but do not secure.

p Using a straight edge held firmly against the countershaft pulley, line up the motor pulley to it and lock the grub screws which secure the motor pulley. See figure 13.

Fig. 12

Fig. 13

q Place the motor drive belt in position and adjust the motor for belt tension. The initial setting is obtained by allowing the belt to support almost the full weight of the motor and base before locking the hexagon nut on the motor base clamp. (Section Q. Part No. 41).

r Check the position of the guard, ensuring clearance for the motor pulley and belt, and rotate if necessary. Tighten guard securing screws.

s Remove tape securing roller and plunger assembly and spring (Section Q. Part Nos. 87 & 88) in countershaft arm. Place the headstock drive belt guard in position, adjusting the hinge screws. (Section Q. Part No. 76). Tighten till play is eliminated, but do not overtighten. Secure with the locknuts provided.

t Slide the tailstock on to the bed from the end. The clamp plate should be guided into position between and below the shears and the lever should be held in the free position, that is, roughly horizontal and pointing away from the headstock.

ASSEMBLY INSTRUCTIONS
(Primary Drive Belt Guard)

a Check that the Clutch is in the engaged position.

b Unscrew ¼" B.S.F. Socket Grubscrew, three turns, in Four Step Cone Pulley.

c Lift the circlip, which is between the small end of the Four Step Cone Pulley and the Distance Collar on the Countershaft, clear of its groove.

d Withdraw Twin Vee Pulley and Shaft complete, approximately ¼" to enable the ⅛" Woodruff Key locating Four Step Cone Pulley to be removed.

e Completely withdraw Twin Vee Pulley and Countershaft ensuring that the Thrust Race, Distance Collar and Circlip are held in the right hand, and that the 3/16" diameter Ball on end of Push Rod is intact.

f When re-assembling ensure correct order of parts of Ball Thrust i.e., Thrust Washer followed by Distance Collar and Circlip.

CAUTION
ON NO ACCOUNT ATTEMPT TO DISMANTLE FROM THE CLUTCH PLATE END.

FOUNDATION

It is essential that the Lathe be placed on a solid foundation. The floor material is an important consideration, concrete being the most satisfactory. If the floor is of flimsy construction, a possible solution is to cut a hole through the floor and build up a concrete foundation from the ground up to the floor level.

If the machine is to be located on an upper floor of timber construction, it should be placed directly over a beam or girder, near a wall, or at some other spot where displacement of the floor will be at a minimum.

Floor Stands

The MYFORD steel cabinet stand makes an ideal support for the Lathe. See Figs. 14, 15 and 16. Wooden benches are not recommended, as they are affected by moisture and atmospheric changes. Despite the rigidity of the Lathe a warping bench can upset the level of a Lathe in the space of a few days, and greatly impair its accuracy.

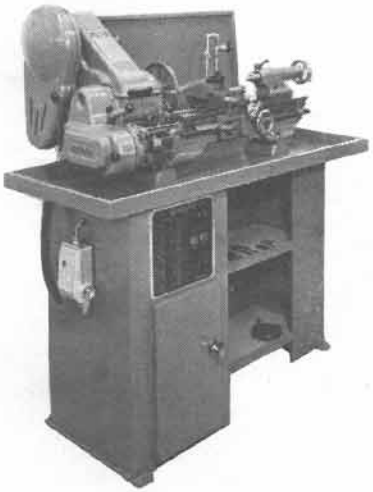


Fig. 14. Lathe mounted on Industrial Cabinet Stand with built-in coolant service and splash guard.

Fig. 15. Tray-top Cabinet with deep tray, raising blocks and terminal block only.

Fig. 16. Tray-top Cabinet as Fig. 15 but with drum type switch.

Myford Range of Lathe Cabinets

If the user is compelled to use a wooden bench, good dry timber must be used. The structure should be solidly built, well braced and should be securely bolted to the floor. A piece of steel sheet should be placed on the bench top to prevent the Lathe feet from sinking into the wood surface under the bolting down pressure. The MYFORD drip tray see Fig. 17, will serve very well for this purpose.

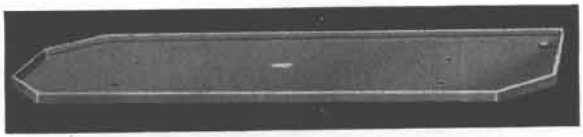


Fig. 17. Drip Tray.

Lathe Height

A bench height of 33-34 inches is suitable for the man of average height. Alternatively, a comfortable working height can be gauged by arranging the Lathe so that the upper surface of the topslide is at elbow height.

Before bolting down, the floor stand should be packed under the feet until the top surface is roughly level.

Levelling the Lathe

If the Lathe is not properly levelled, the Lathe bed may be twisted, resulting in misalignment of the headstock or tailstock with the ways, causing the lathe to turn and bore taper. ACCURATE WORK CANNOT BE EXPECTED IF THE LATHE IS NOT LEVEL.

The precision built into a Lathe can be completely nullified by faulty, uneven bolting on bench or floor stand.

Levelling should be carried out by placing shims of thin metal or asbestos sheet jointing under the Lathe feet, the amount of packing being determined with an Engineer's precision level. Where the Lathe is mounted on raising blocks having jackscrews, packing shims are not required. The level, which should be sufficiently sensitive to read to ·003" per foot or better, should be placed across the bed at both the headstock end and the tailstock end. See Fig. 18. After bolting down re-check for level, and make any further necessary adjustments.

Do not try to level the Lathe by packing under the cabinet or bench.

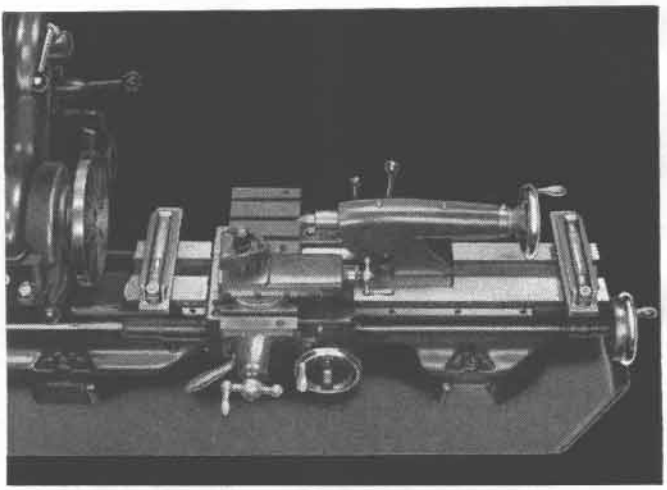


Fig. 18

Levelling with a Dial Test Indicator

If a precision level is not available, use a dial test indicator in the following manner, to ensure that no distortion of the lathe bed takes place when bolting down:—

Place the Lathe on the bench or floor stand with the holding down bolts loosely in position.

Grip a piece of 1" diameter material in the chuck with approximately 8" protruding, and clamp the dial indicator in the tool post with the plunger located at the extreme end of the test bar as shown in Fig. 19.

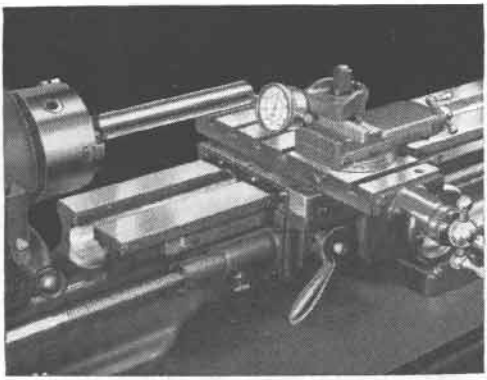


Fig. 19
Showing test piece in chuck and dial indicator in tool clamp.

Rotate the headstock spindle by hand, and adjust the dial indicator, so that the zero mark lies midway between the extremes of the pointer movement.

So long as the lathe bed is not strained the dial indicator will continue to register zero but any distortion due to bolting down on to an uneven surface will be shown immediately by the dial indicator.

The lathe feet should be shimmed, so that, when the holding down bolts are finally tight, the dial indicator still reads zero.

Checking the Levelling

A final check of the levelling can be carried out by turning a test piece as shown in Fig. 20. The test piece should be approximately 1" dia. by 4" to 6" long and should be relieved in the middle so as to leave about ½" for test turning at each end.

Take a very light finishing cut (·002") across both collars without the use of the tailstock and without alteration of the tool setting. Measure the dia. of each collar with a micrometer. The collars should be the same dia., if not the same, a further adjustment of the packing is required.

If the dia. of the test piece is larger at the free end, packing should be increased under the FRONT of the foot at the tailstock end, or under the BACK of the foot if smaller.

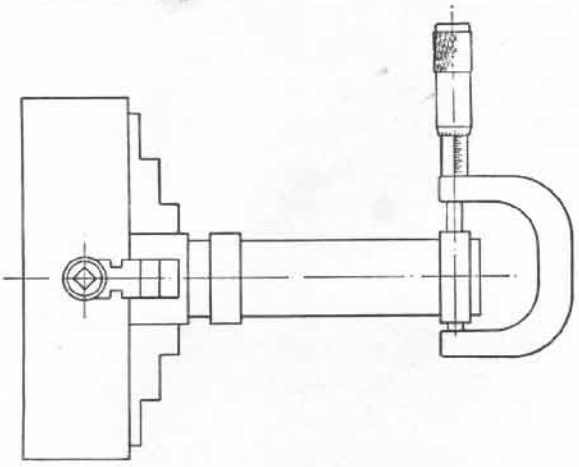


Fig. 20
Showing test piece with two collars.

Readjustment

It may be necessary to readjust the packing shims from time to time, especially if the lathe is mounted on a wooden floor or bench.

Electric Motors and Switch Wiring

SUPER 7 Lathes are designed for use with 1,420/1,450 r.p.m. full load speed electric motors of ½ h.p. 3 phase and certain single phase of ¾ h.p. Resilient mounted motors are recommended.

All single phase motors which are required for reversing duty will need to have four terminals for connection to the reversing switch. Should only two terminals be provided, it will not be possible to use the motor, unless the two wires which feed the motor starting windings can be brought out separately.

Switches

MYFORD cabinet stands are fitted with a reversing switch which is already connected to a terminal block at the back of the stand. See Figs. 21 and 22. The Lathe motor and mains supply should be connected to the appropriate terminals as indicated in Figs. 25 & 26. NOTE THE EARTHING TERMINAL TO THE LEFT OF THE TERMINAL BLOCK.

Stands (20/039 & 20/040) fitted push button starters

On stands fitted with push button starters the electricity supply must not be connected to the terminal block at the back of the but direct into the push button starter (for single phase connect to L1 & L3).

Fig. 21

Fig. 22

Close-up of terminal Block with and without cover.

The DRUM TYPE reversing switch, see Figs. 23 & 24 is the most suitable type of Switch for use with a bench mounted lathe, being completely shrouded and easily mounted. A mounting bracket is available for the attachment of the Drum Type switch to the front of the Lathe in a convenient operating position. See Fig. 24. This bracket can be fitted to Standard Change Gear Machines only.

Fig. 23
Drum Type Switch

Fig. 24
Drum Type Switch Mounted on Switch Bracket

The connections for Drum Type reversing switches are shown in Figs. 25 & 26.

When single phase motors are supplied with Bench Lathes, but without switchgear, the terminals are 'bridged' at the MYFORD works for plain "ON-OFF" starting. These bridge pieces must be removed before a reversing switch can be used. When a single phase motor is to be connected to a reversing switch **always check that there are no links** connecting the starting to the running windings.

Wiring Diagrams for motors used in conjunction with Dewhurst Drum Type Reversing Switch.

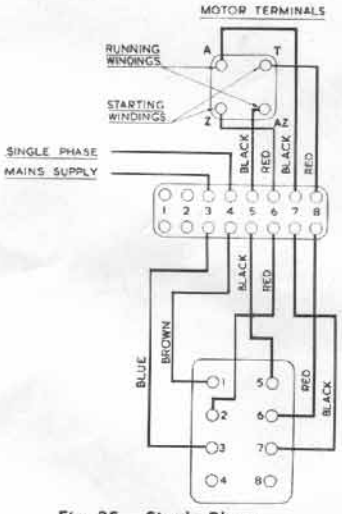


Fig. 25. Single Phase.

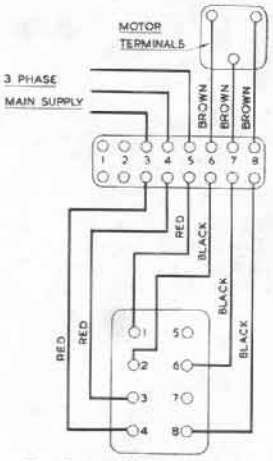


Fig. 26. Three Phase.

Earthing

It is important to make sure that the cabinet and the Lathe are electrically connected to a satisfactory earthing point. Should any difficulty be found in wiring and running the motor the advice of an electrician who is competent in motor wiring, should be sought.

Connection Diagram—Santon Rotary Reversing Switch

MOTOR	STARTING WINDING	RUNNING WINDING	RUNNING WINDING	STARTING WINDING
CROMPTON	Z	A	A2	Y
AEI	A1	T3	T5	A2
ENGLISH ELECTRIC	1	2	3	4
BROOK	Z1	A1	A2	Z2

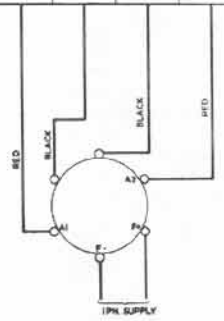
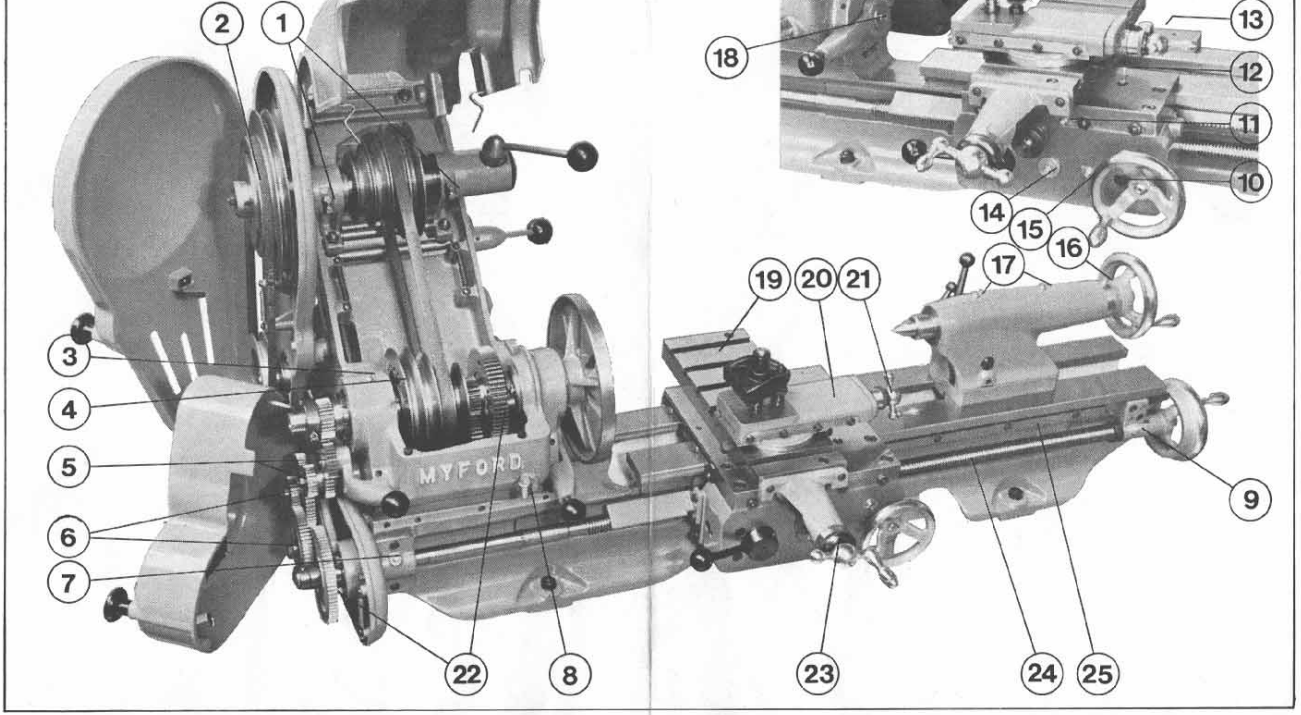


Fig. 25A

N.B. Fig. 25 shows terminal markings for Brook Crompton Parkinson motors. The table above shows alternative terminal markings—equally applicable when connecting other motors to drum type switches.



LUBRICATION CHART (USE ESSO NUTO H32 EXCEPT WHERE OTHERWISE SPECIFIED. UNDER I.S.O. SPECIFICATION 3448/1975(E) NUTO H32 REPLACES NUTO H44)

1. **Countershaft Bearings.** Replenish the two oil cups daily.
2. **Cone Clutch.** With the clutch disengaged apply two or three drops of oil weekly.
3. **Headstock Rear Bearing.** Lubricate with the oil gun daily.
4. **Headstock Pulley.** Lubricate with the oil gun twice daily whenever the reduction gear is in use.
5. **Tumbler Gears.** Lubricate with the oil gun twice daily.
6. **Changewheel Studs.** Lubricate with an oil can twice daily.
7. **LH Leadscrew Bracket.** Lubricate with the oil gun weekly.
8. **Headstock Front Bearing.** Replenish the oil cup twice daily.
9. **RH Leadscrew Bracket.** Lubricate with the oil gun weekly.
10. **Apron Reservoir.** Remove filler plug and top up to overflowing weekly.
11. **Intermediate Gear/Clutch shaft.** Lubricate with oil gun daily.
12. **Saddle, Front Shear.** Lubricate with oil gun daily.
13. **Saddle, Rear Shear.** Lubricate with oil gun daily.
14. **Apron Bevel Gear Bearing.** Lubricate with oil gun daily.
15. **Leadscrew Bevel Gear Bearing.** Lubricate with oil gun daily.
16. **Tailstock Thrust.** Lubricate with oil gun daily.
17. **Tailstock Barrel.** Lubricate with oil gun daily.
18. **Backgear Spindle.** When backgear is in use lubricate with oil gun twice daily.
19. **Cross Slide Ways.** Clean, and apply an oil of viscosity of SAE30 weekly.
20. **Top Slide Ways.** Clean, and apply an oil of viscosity SAE30 weekly.
- *21. **Top Slide Feed Screw.** Using oil of viscosity SAE30, lubricate from underneath twice weekly.
- *22. **Backgears and Change gear teeth.** Lubricate with oil of viscosity SAE30 daily.
- *23. **Cross Slide Feedscrew.** Using oil of viscosity SAE30, lubricate from underneath twice weekly.
- *24. **Leadscrew.** Clean with a stiff brush and apply oil of viscosity SAE30 weekly.
- *25. **Rack.** Lubricate with oil of viscosity SAE30 weekly.

NOTE. We supply and recommend Esso Nuto H32 oil or equivalent for general lubrication. Where oil of viscosity SAE30 is specified, any good motor oil of this number will be satisfactory.
As an alternative to motor oil of viscosity SAE30 use an industrial oil of viscosity I.S.O. VG68.
For starred items nos. 21, 22, 23, 24, 25 Rocol MTS1000 grease should be used in those territories where it is available.

LUBRICATION

After installing the lathe, refer to the lubrication chart on pages 17 and 18 and treat all points with the recommended lubricants. An oil gun is supplied for use with the pressure nipples fitted to each machine. Careful attention should be paid to the lubrication of the headstock bearings, particularly during the first few hours of running.

Headstock Spindle

The front bearing is lubricated from the oil cup mounted on the front of the bearing housing. The cup should be replenished twice daily. The rear bearings require lubrication only once daily. A nipple is provided on the top of the rear bearing housing.

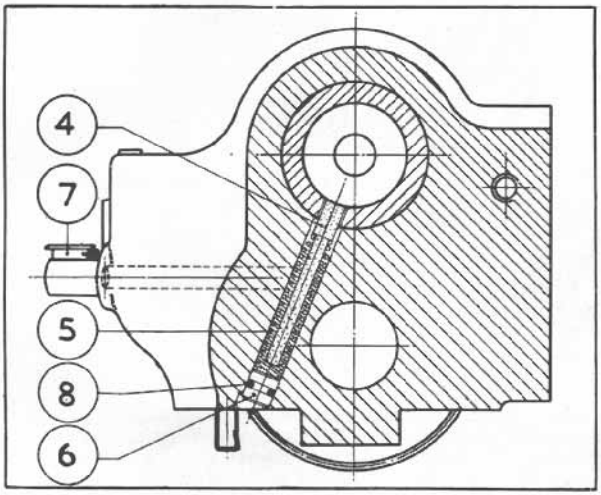


Fig. 27

Fig. 27 is a section through the headstock, showing No. 7 the Lubricator, No. 4 the Wick, No. 5 the Spring, No. 6 the Retaining Plug and No. 8 an "O" Ring, all for the front bearing lubrication.

It will be observed that the end of the Wick is in contact with the spindle and it should be noted that the arrangement has been so designed that provided the oil cup is replenished twice daily adequate lubrication is provided right through the speed range.

Countershaft and Clutch Pulley

The hardened steel countershaft runs in oil impregnated bronze bearings which are located in the swing head. Oil cups are provided for occasional lubrication. The countershaft clutch pulley is mounted on "sealed for life" ball bearings which do not require any attention.

IMPORTANT: WHENEVER THE HEADSTOCK REDUCTION GEAR IS USED, ENSURE THAT THE HEADSTOCK PULLEY BEARING IS WELL LUBRICATED VIA THE OIL NIPPLE AT THE LARGE END OF THE PULLEY. Fig. 28.

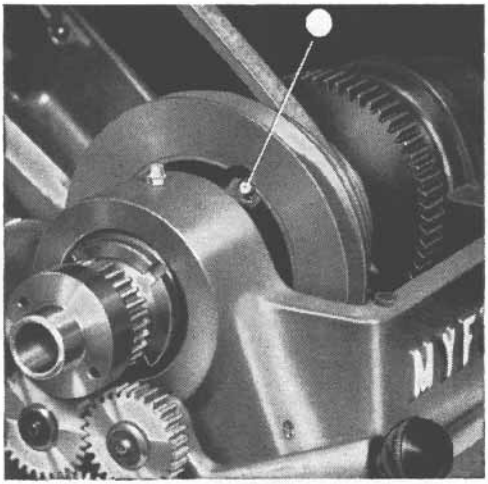


Fig. 28. Showing the oil nipple for headstock pulley bearing lubrication.

General

Daily cleaning and correct lubrication of the machine will greatly increase its working life. Excess oil should be wiped from oiling points, as oil and dirt form an abrasive compound which can easily damage precision bearing surfaces.

Wipe the bed and other sliding surfaces with a clean oily rag at frequent intervals. Use a brush to clean spindle nose threads, gear teeth, leadscrew threads etc.

At regular intervals, the leadscrew should be thoroughly cleaned with a stiff brush and paraffin, and oiled freely along its entire length.

Keep the Lathe completely covered between working periods. The MYFORD waterproof Lathe cover shown in Fig. 29 will provide excellent protection from moisture and abrasive dust when the Lathe is not in use.

Fig. 29. Lathe cover.

CONTROLS & ADJUSTMENTS

DO NOT OPERATE THE LATHE until all of the following instructions have been carefully read and the controls and adjustments are fully understood.

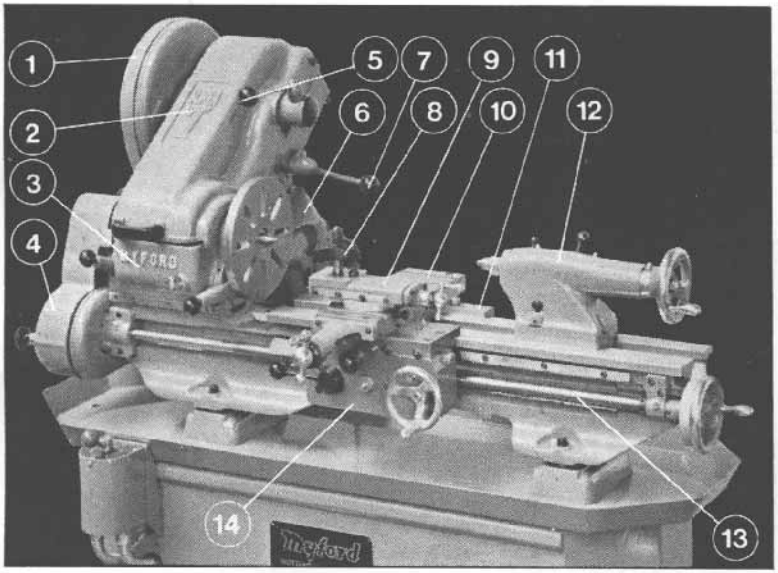


Fig. 30. Showing the main parts of the lathe.

(1) PRIMARY DRIVE BELT GUARD
(2) HEADSTOCK DRIVE BELT GUARD
(3) HEADSTOCK
(4) LEADSCREW DRIVE GEAR GUARD
(5) COUNTERSHAFT CLUTCH LEVER
(6) ELECTRIC MOTOR
(7) HEADSTOCK BELT TENSION RELEASE
(8) TOOLPOST
(9) TOPSLIDE
(10) CROSS SLIDE
(11) SADDLE
(12) TAILSTOCK
(13) LEADSCREW
(14) APRON

Caution! Using the No. 1429 taper turning attachment.

When disconnecting the cross slide feed screw for any purpose (e.g. use of taper turning attachment or adjustment of cross slide gib strip) first move the cross slide so that its front end is roughly flush with the front face of the saddle. Next remove the two cheese head screws KA22 which secure the feed nut KA21, then the two cap screws KA34 which secure the cross slide end bracket KA65. Now withdraw the feed screw complete with end bracket, micrometer dial, ball handle, feed nut *and the feed gear KA20*. Unless the feed gear is withdrawn with the feed screw and feed nut, difficulty will be experienced on reassembly.

Headstock Spindle Drive

A compact motorising unit which makes the SUPER 7 completely self contained, is attached to the rear of the headstock and lathe bed. The motor is mounted on a swinging platform and the drive is conducted by vee belt from the motor to a countershaft. The vee cone pulleys on the motor, countershaft and headstock spindle in conjunction with the reduction gear, give a range of 14 speeds. Fig. 31.

The two fastest backgeared speeds are approximately the same as the two slowest ungeared speeds. They are not shown and should not be used.

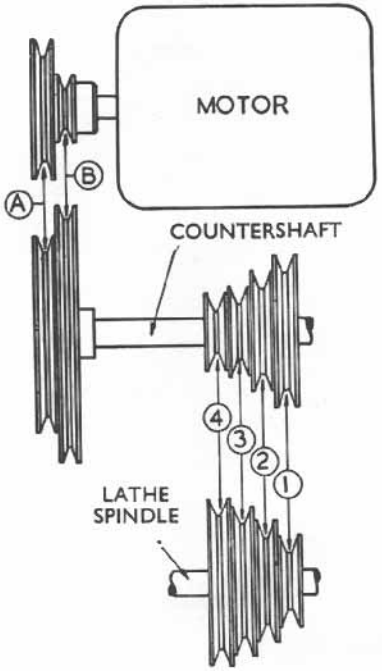


Fig. 31

HEADSTOCK SPINDLE SPEEDS
(1420/1450 R.P.M. FULL LOAD SPEED MOTOR)
SPINDLE SPEEDS WITH 1750 R.P.M. (60 Hz A.C.) MOTOR IN BRACKETS

MOTOR DRIVE BELT POSITION	HEADSTOCK DRIVE BELT POSITION	UNGEARED	GEARED
A	1	2105 (2525)	—
A	2	1480 (1775)	—
A	3	1050 (1260)	135 (162)
A	4	740 (890)	95 (114)
B	1	600 (720)	77 (92)
B	2	420 (505)	54 (65)
B	3	300 (360)	39 (47)
B	4	210 (250)	27 (32)

Speed Changing

Access to the headstock belt for speed changing is attained by lifting up the front guard, as shown in Fig. 32 and the headstock belt tension is released by the operation of the belt tensioning lever.

DO NOT ATTEMPT TO CHANGE THE HEADSTOCK BELT POSITION WHILST THE LATHE IS RUNNING, NOR WITHOUT OPERATING THE BELT TENSIONING LEVER

The six lower speeds of the available range of 14 spindle speeds are achieved through the headstock reduction gears. As supplied, the machine is set for direct (or ungeared) drive, i.e. the headstock cone pulley is coupled to the 60T "bull" gear which is in turn keyed to the spindle.

To engage the reduction gears release the pulley coupling by rotating the half circular key (fitted to the 60T "bull" gear) through 180 degrees. The two positions of the key operating lever are positively determined by ball and spring.

Release the plunger which locates the reduction gear lever and reset in the upper position to engage the reduction gear cluster with the 60T "bull" gear and the cone pulley sleeve gear.

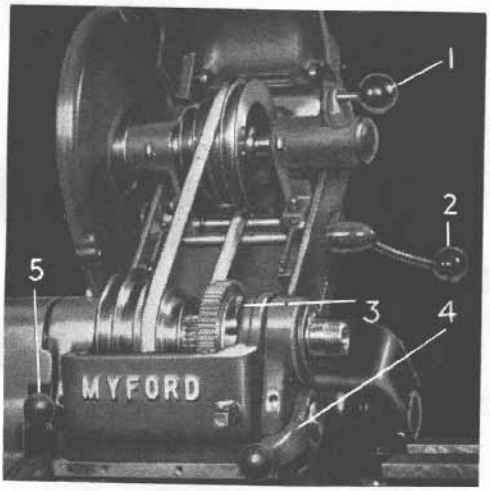


Fig. 32. Location of the Headstock Controls.

(1) CLUTCH LEVER
(2) BELT TENSION RELEASE LEVER
(3) LEVER FOR BACK GEAR KEY
(4) BACK GEAR LEVER
(5) TUMBLER REVERSE LEVER

DO NOT ATTEMPT TO ENGAGE THE REDUCTION GEARS WHILST THE SPINDLE IS REVOLVING

ADJUSTMENT OF REDUCTION GEAR CLUSTER ENGAGEMENT

Release the headstock pulley coupling and engage the reduction gear cluster.

Place a wedge between the reduction gear cluster (1) and the inside of the headstock casting, as shown in Fig. 33. This will load the eccentric shaft (2) and so prevent movement.

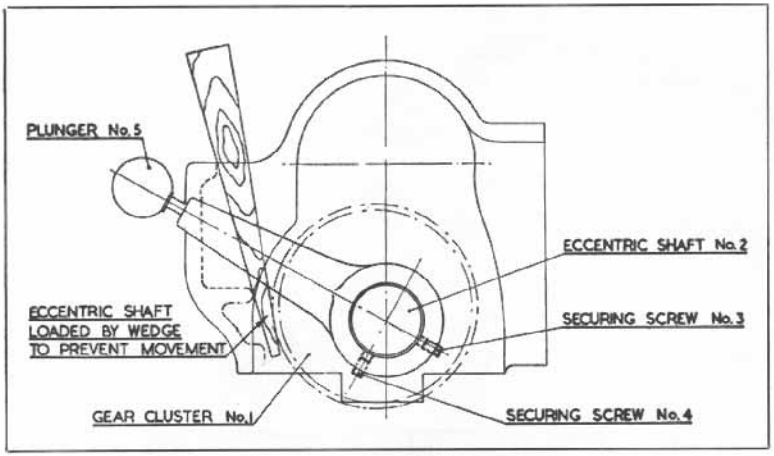


Fig. 33. Showing reduction gear adjustment.

Release the lever securing screws (3 and 4) and withdraw the lever plunger (5).

Adjust the lever in relation to the eccentric shaft and tighten the securing screws.

Remove the wedge, restore the lever plunger and check the backlash.

HEADSTOCK SPINDLE BEARINGS

IMPORTANT—The bearings are carefully adjusted at the works and should not be interfered with unless adjustment is necessary. Damage can be caused by faulty adjustment and the following notes and drawings should be carefully studied before attempting adjustment.

As shown in Fig. 34 the headstock bearing layout combines a tapered front journal with twin angular contact ball bearings at the rear. Front journal clearance is adjusted by axial movement of the spindle relative to the tapered bush.

In considering the ball bearings it will be noted that the outer races of each bearing are separated by a spacing washer, and that both outer races and spacer are therefore capable of, and intended to be, locked solid together by screwed rings, Nos. (1) and (2).

As the inner races have no spacer they can be loaded by end pressure arising from the adjustment of collar (No. 4).

(**Note.** The spacing washer is cut away to permit oil to reach the ball bearings. Should the bearings be removed from the headstock care must be taken when replacing to ensure that this cut-away section is opposite the oil nipple.)

Examination of Fig. 34 will show that the ball bearings are held between the spindle thrust shoulder (5) and the adjusting collar (4), by the distance sleeve (6) and the sleeve gear (7) which act as spacers.

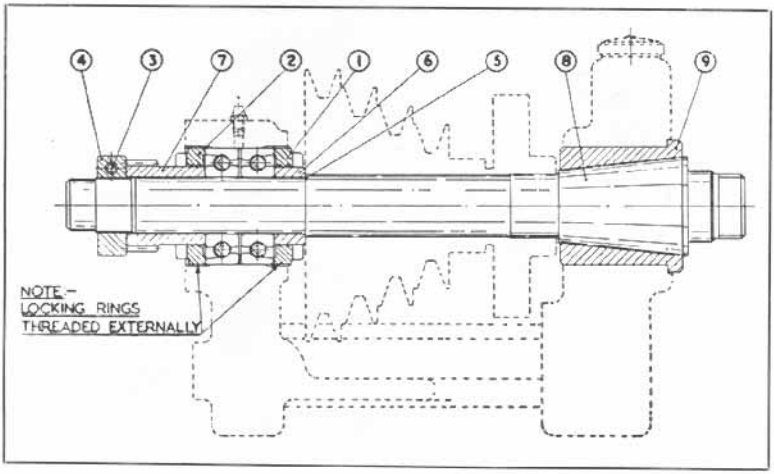


Fig. 34. Showing headstock spindle layout.

It follows that any axial displacement of the ball bearings will result in a similar displacement of the spindle. This in turn will affect the radial clearance between the tapered front journal (8) and the bronze bush (9).

The externally screwed rings (1) and (2) permit very fine axial setting of the spindle with resulting critical control over front journal clearance.

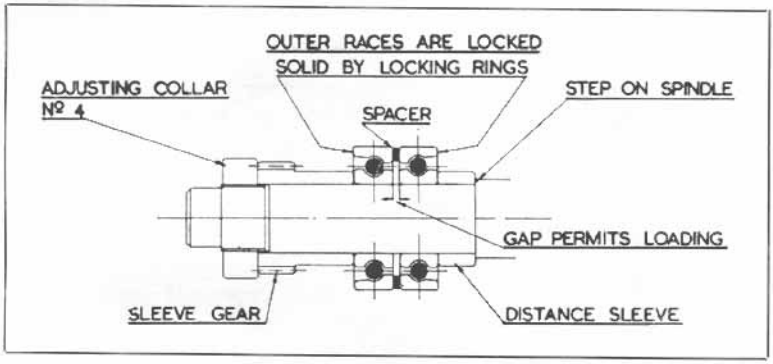


Fig. 35

ADJUSTMENT OF SPINDLE BEARINGS

1. To free spindle from front bush

Rotate locking ring (1) using the "C" spanner provided, the top of the locking ring being turned towards the operator. Rotate locking ring (2) in the same direction until the ball bearings contact the locking ring (1) and the outer races are again locked together. This procedure moves the ball bearings and spindle bodily forward to a position free of the front bush as shown in Fig. 36.

IMPORTANT. Adjustment of rear ball bearings for correct loading cannot be made until the spindle is completely freed from the front bush. On the other hand, adjustment of the front bearing clearance cannot be made until the adjustment of the ball bearings is correct.

Please note that all threads are right hand.

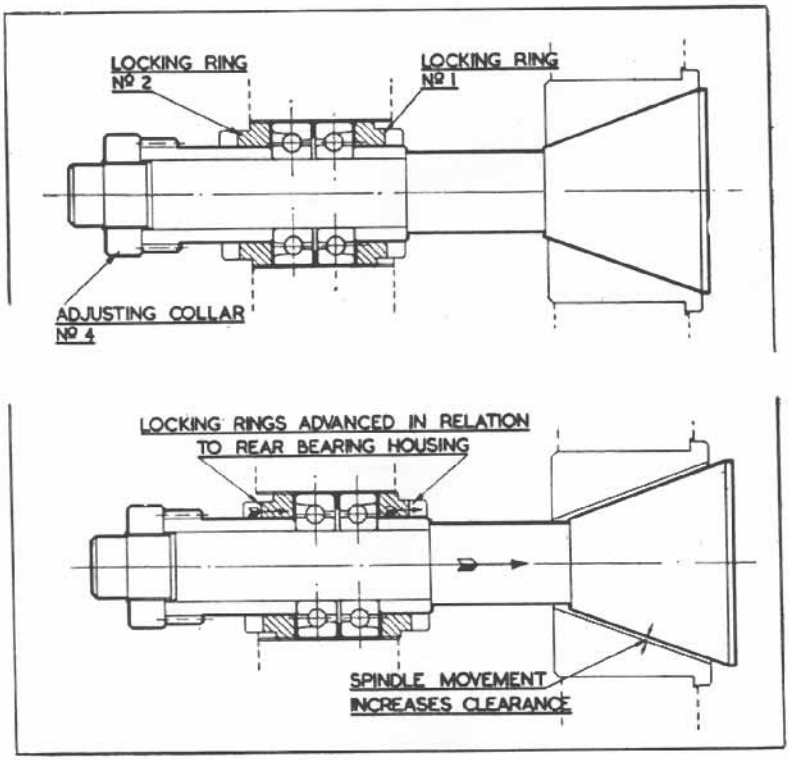


Fig. 36. Showing spindle movement exaggerated.

2. Loading the rear ball bearings

Refer to Fig. 34. Slacken screw (3) just sufficiently to allow adjusting collar (4) to be turned. Excessive freedom in the collar thread may allow the thrust face to move out of square and affect the setting of the ball bearings when the screw (3) is tightened. Rotate collar (4) clockwise (looking on end of spindle) to increase the loading.

Note. The ball races should not be loaded more than is necessary to remove all traces of spindle end play. **OVERLOADING WILL CAUSE RAPID DETERIORATION OF THE SPINDLE BEARINGS.** The races are a close fit on the spindle and, should collar (4) be overtightened, it may be necessary (after slackening) to tap the end of the spindle lightly to ensure that the ball races regain a free position.

3. Adjusting the front bearings

The correct clearance between the spindle cone and tapered bronze bush can now be restored. Move the ball bearings and spindle back until the spindle cone contacts the tapered bush and will not rotate, i.e. to a condition of no clearance. Clearance can now be set by moving the spindle forward from this "solid" position by a $\frac{1}{4}$ in. rotation of the rim of the locking rings (i.e. 15 degrees). This provides a preliminary setting which may be varied according to running conditions.

CLUTCH ADJUSTMENT

Reference to Figure 37 will show that the countershaft clutch consists of a coned metal driving member, the clutchplate (3) which is tenoned into the end of the countershaft, and normally held in engagement with the tapered cone of the pulley (4) by a compression spring (6) which is inserted into the hollow countershaft (7) between the shoulder in the bore of the shaft and the head of the push rod (1).

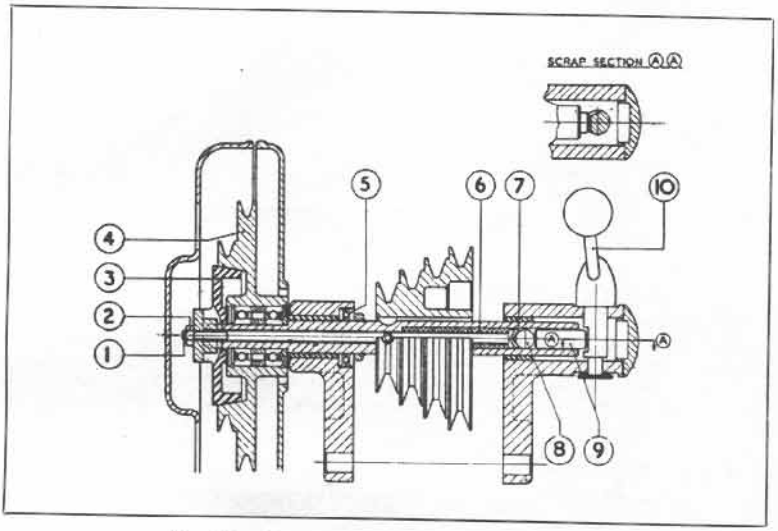


Fig. 37. Showing countershaft clutch layout.

The clutch is engaged or disengaged by rotation of the cam shaft assembly (10). Scrap Section A-A on the illustration shows that this has two flats machined on it. The larger flat corresponds to the engaged position of the clutch (lever knob close to headstock belt drive guard) and the smaller one, to the disengaged position (lever knob moved to the right). The flats operate on the push bar (9), thence to the push rod (1) via the steel ball (8).

During the early life of the machine, a certain amount of bedding in takes place between the clutch plate and the pulley, and it may be necessary to reset the push rod (1). This is screwed into a threaded hole in the clutch plate, and secured by the hexagon nut (2).

The clutch is correctly adjusted when there is 0·005" to 0·010" clearance between the push bar (9) and the larger flat on the cam shaft lever assembly (10), with the clutch engaged. (Approximately 45° to 90° rotation of the push rod from the 'no clearance' setting.) This clearance may be obtained by releasing the hexagon nut (2) and rotating the push rod (1), relative to the clutch plate (3), clockwise to reduce the clearance, and anti-clockwise to increase the clearance.

N.B. The ball bearings in the pulley (4) are "sealed for life", are pre-packed with grease, and do not need further lubrication. The hardened countershaft runs in 'Oilite' bearings. Oil is fed to the OUTSIDE of these bearings via the oil cups (Section Q. Part No. 7). They should be filled at regular intervals with Esso Nuto H32 Oil or equivalent. The ball thrust bearing (5) will be lubricated by "Surplus" oil from the left hand countershaft bearing.

TUMBLER REVERSE

The Tumbler Reverse or Leadscrew Reverse gear, provides a quick means of changing the rotation of the leadscrew drive to reverse the direction of travel of the lathe carriage. The central lever position is neutral and disengages the leadscrew drive.

Reference to Fig. 38 will show that the tumbler reverse assembly is supported on the headstock by a long swivel pin (1) which is a press fit in the tumbler reverse lever (2). The assembly is retained in position by the thrust screw (3) which draws the tumbler reverse lever back against the pivot boss facing on the headstock.

NOTE. It is important that the thrust screw (3) be set with light pressure only. Heavy pressure may extract the swivel pin (1) from its position in the tumbler reverse lever.

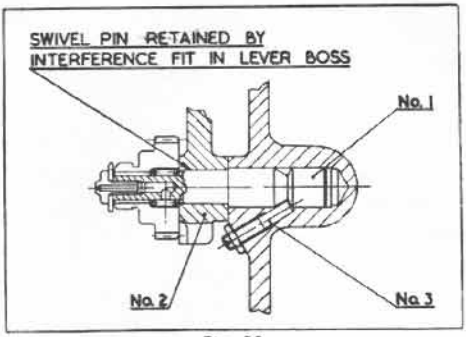


Fig. 38

CARRIAGE CONTROLS

Fig. 39 gives the names and positions of the carriage controls. The apron handwheel moves the carriage along the bed, and the cross slide and top slide ball handles move the tool post in and out.

The cross slide feedscrew dial graduations represent slide movements in increments of ·001", whereas the topslide is graduated in increments of ·002".

On machines fitted with metric feedscrews, each division of the micrometer dial on the cross slide represents 0·05mm off work diameter, and on the top slide, 0·05mm movement.

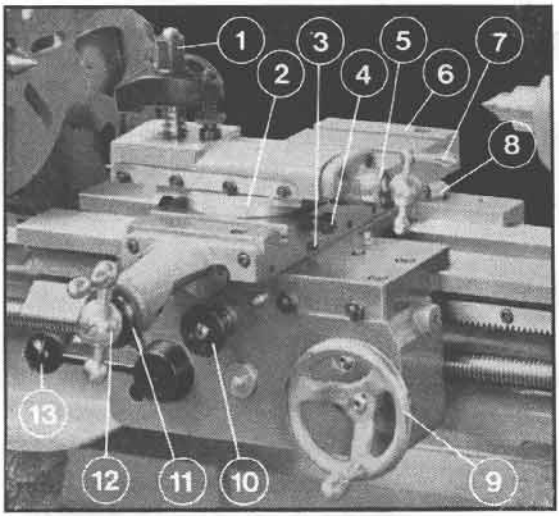


Fig. 39. Showing the carriage controls.

(1) Toolpost
(2) Swivel graduations
(3) Cross slide clamp (2)
(4) Top slide base locking screw (2)
(5) Top slide micrometer dial
(6) Cross slide (boring table)
(7) Top slide ball handle
(8) Saddle clamp
(9) Apron handwheel
(10) Power cross feed engagement
(11) Cross slide micrometer dial
(12) Cross slide ball handle
(13) Leadscrew nut lever

A clamp screw (8) is provided on the saddle to lock the carriage to the bed for facing, parting off, and milling etc., CARE SHOULD BE TAKEN TO SEE THAT THE CLAMP SCREW IS NOT TIGHTENED WHEN THE CARRIAGE IS TRAVERSED BY THE LEADSCREW.

Two socket set screws, (3) on Fig. 39, visible on the parts list as KA31, are fitted to provide cross slide clamping. This gives extra rigidity when carrying out certain milling and boring operations.

Longitudinal Feed

Depress the half-nut lever to engage the half nuts with the leadscrew when longitudinal movement of the carriage is required.

If the half-nuts do not engage immediately, DO NOT USE FORCE. Wait until the leadscrew rotates to a position which permits engagement of the half-nut by gentle pressure only.

The thread dial indicator will give visual guidance and show when the leadscrew is in the correct position for nut engagement.

Saddle and Slide Rests

All slides are provided with normal gib adjustment, and steel plates are fitted beneath the saddle to prevent saddle lift. These plates bear on the underside of the lathe bed and adjustment to ensure close contact is by means of laminated shims. These have a solid appearance, but are made up of 0·002" laminations. By inserting a pen-knife blade it is an easy matter to peel off the desired thickness to allow the strips closer contact with the lathe bed.

The saddle and compound slides on a centre lathe are designed to withstand the cutting force of the tool and it is therefore necessary to maintain, by periodic adjustment, the close contact of gib strip and slide surface. Careful attention should be given to the screw adjustment to ensure an even pressure of the gib strip.

When stripping the compound slides for thorough cleaning and lubrication re-adjust the slides without feed screws and screw support brackets, testing the slides by hand motion, re-assembling the feed screw units as the last operation. By the very fact that the slides are built upon each other deflection of the turning tool is transmitted through the slides; so it is important to see that your lathe tool has the minimum overhang and is flat on its clamping surface.

Cross- and Top-Slide Feedscrew Adjustment

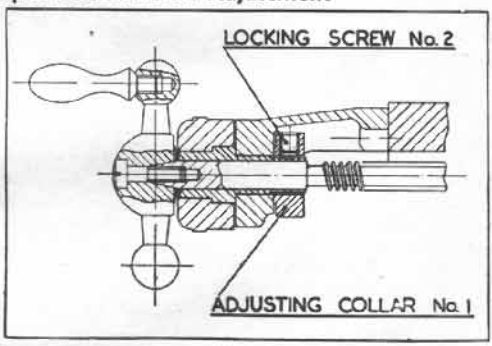


Fig. 40

Fig. 40 shows the mechanism of the cross slide feedscrew end plate. The top slide mechanism is fundamentally the same.

The adjusting collar (1) is provided behind the endplate boss for elimination of end play in the assembly.

Locking screw (2) must be released to free the adjusting collar and retightened after adjustment.

Saddle Gib Strip Adjustment

When adjusting the saddle gib strip, first adjust the two outer screws, ensuring equal pressure. After tightening the locknuts, check for freedom of movement but without play. Next, adjust the inner screw, so that it contacts the strip without increasing the friction and tighten its locknut.

Cross Slide Gib Strip Adjustment

The cross slide gib strip is held in position by four cheese head screws whose heads are visible in the top of the cross slide. There are four grub screws in the right hand side of the cross slide for adjusting purposes.

Before adjusting the strip, remove the two screws securing the cross slide end bracket so that the cross slide itself can be pushed backwards and forwards across the saddle manually. The four cheese head screws in the top of the cross slide should be slackened off and then just nipped, and they should be in this condition whilst the necessary adjustments are made to the grub screws. Do not forget to lock the cheese head screws after adjustment.

Removal of Topslide and Base Unit

The unit may be removed complete by releasing the two square head screws one to the right and one to the left of the cross slide (Figure 39, Item 4). Both screws should be withdrawn a full ¼". The unit may then be lifted clear of the cross slide.

IMPORTANT:

When the topslide and topslide base unit has been removed in order to enable the cross slide to be used as a boring or milling table it is essential that the 1⅞" diameter hole in the cross slide which locates the topslide base be filled with the plug which is included in the standard equipment. Failure to fit this plug will result in swarf entering the gear teeth and damaging the mechanism.

APRON

The apron is anchored to the saddle by means of four socket head screws, and a periodic check should be made to ensure that these screws are tight.

The 2 B.A. x 1¾" cap screw (parts list, LA6) must be so adjusted that the leadscrew nut will not close sufficiently to cause it to bind on the leadscrew.

Replacement of Leadscrew Nut

Remove the leadscrew from the machine and detach the apron.

Release socket set screw LA58 and unscrew approximately ¼" (6mm). Withdraw cam, lever and eccentric sleeve LA55 and LA57. Remove cam pegs and slide out worn nut halves.

On the new leadscrew nut, check that inner end of cap screw LA6 does not project beyond face of nut. Fit new nut to apron and adjust gib strip LA7 (securing screws LA8, adjusting screws LA9 and LA10). Replace cam pegs.

Replace cam and eccentric sleeve LA55 and LA57 with the slots in the sleeve on the horizontal centre line and locate with socket set screw LA58 but leave screw loose. Attach apron to saddle but leave screws only lightly nipped. Reassemble leadscrew to machine and adjust Simmonds nut G19 to remove end play but without causing friction. Traverse the carriage as far to the right as possible so that the apron is close to the right hand end bracket. Tighten the screws to secure the apron, at the same time, rotating the leadscrew in order to centralise the apron.

Rotate the leadscrew to position the key way roughly on the horizontal centre line. Mount a test dial indicator on the bed in such a manner that, with a broad feeler gauge or similar material approximately 5/16" (8 mm) wide between the leadscrew and the plunger, a reading can be obtained on the top of the leadscrew. After noting the reading, rotate the leadscrew exactly 180°. Take the second reading. Set the indicator to read zero on the meanof the two readings. Close the leadscrew nut firmly on to the leadscrew. If the dial indicator no longer reads zero, rotate the eccentric sleeve until a zero reading is again obtained. Now tighten the socket set screw LA58.

With the leadscrew nut still held firmly engaged with the leadscrew adjust the setting of cap screw LA6 until it is in contact with the under side of the upper half of the leadscrew nut. Open the leadscrew nut. Rotate the cap screw a further fifth to one quarter of a revolution so that the nut will not bind on the leadscrew when it is closed.

THE TAILSTOCK

The Tailstock is securely locked to the bed by the quick-acting clamp lever which is located at the rear of the tailstock. Fig. 41. (No. 1)

The barrel is locked in place by means of a small lever, No. 2.

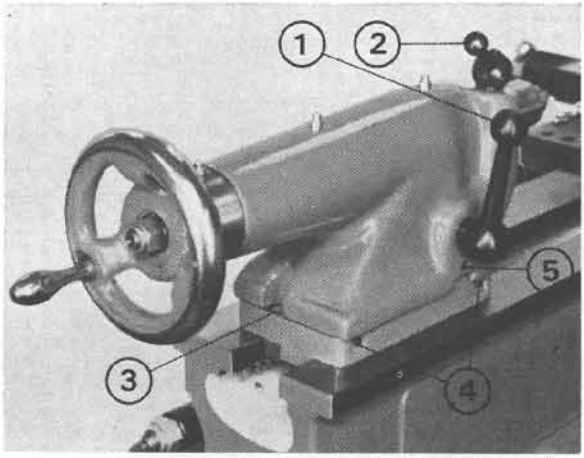


Fig. 41. Rear view of the tailstock.

(1) CLAMP LEVER

(2) BARREL LOCKING LEVER

(3) GIB SECURING SCREWS

(4) GIB THRUST SCREWS

(5) SET OVER SCREW

The Tailstock can be set-over $\frac{7}{16}$" for taper turning, by first loosening the bed clamp and then adjusting the screws (3) which are located in the tailstock body, directly above the base tenon. A zero mark is engraved at the end of the tailstock to serve as a rough guide to set-over amounts, and to assist in returning the tailstock to its normal position for parallel turning.

Tailstock Gib Adjustment

Refer to Fig. 42. Release gib securing screws (1) and retighten until just nipped.

Adjust thrust screws (2) just sufficiently to remove all trace of play of the tailstock relative to the bed shears, but without causing undue friction.

Retighten gib securing screws and check for freedom of movement but lack of "play".

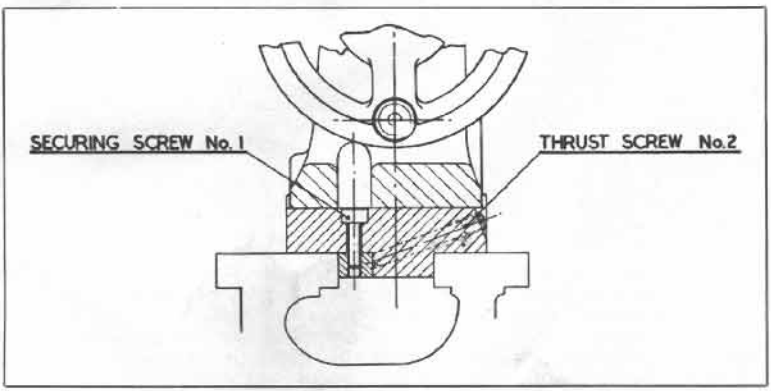


Fig. 42

POWER CARRIAGE FEEDS

Standard change gear lathes are equipped with a set of 14 change wheels for cutting various screw threads and obtaining various power longitudinal and cross feeds.

To set up the lathe for threading or feeding, refer to the change wheel chart inside the change wheel guard Figs. 44 and 45.

DO NOT MOVE THE TUMBLER REVERSE LEVER WHILST THE SPINDLE IS REVOLVING

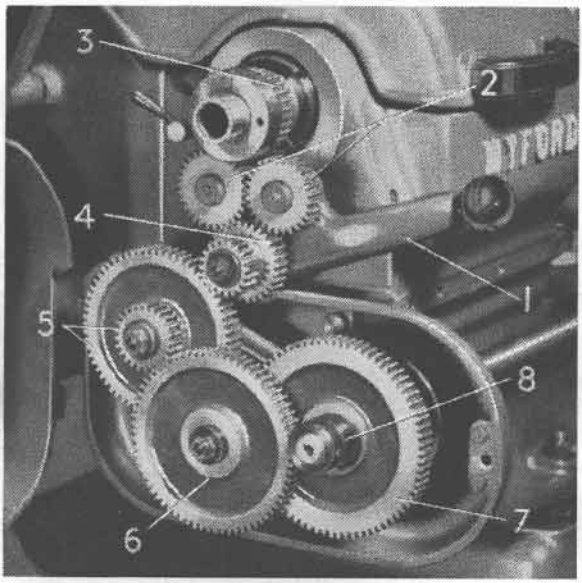


Fig. 43. Showing Leadscrew Drive.

(1) TUMBLER REVERSE LEVER
(2) TUMBLER REVERSE GEARS
(3) 30T SPINDLE GEAR
(4) TUMBLER SLEEVE GEAR
(5) 1st STUD GEARS
(6) 2nd STUD GEARS
(7) LEADSCREW GEAR
(8) SPACER

The thread pitch, or feed, to be set up will be located in the first two columns under the headings T.P.I. and Feed per Rev., respectively. In the third column under the heading DRIVER is listed a number of teeth in the change wheel which should be placed on the tumbler sleeve gear.

In the fourth and fifth columns under 1st stud and 2nd stud are shown the gears or pairs of gears which should be placed on the 1st and 2nd studs respectively.

The sixth column lists the gear to be placed on the leadscrew under the heading LEADSCREW.

The column headed SET-UP refers to the number of the diagram, Fig. 46, which will indicate the arrangement of gears and spacers for the pitch in question; see also Fig. 43 which shows set-up as in Diagram 3, Fig. 46.

When setting up the gear train sufficient backlash between each pair of meshing gears should be allowed. When the lathe is in operation the play in the gears is automatically taken up according to the direction of travel; the amount of gear clearance does not influence the accuracy of thread cutting. Gear noise can be reduced by the application of grease, preferably graphited.

INCH PITCHES Fig. 44

T.P.I.	FEED PER REV.	DRIVER	1ST STUD		2ND STUD		LEAD SCREW	SET-UP
			DRIVEN	DRIVER	DRIVEN	DRIVER		
8	·1250"	20	IDLE 75 WHEEL		——	——	20	1
9	·1111"	40	IDLE 60 WHEEL		——	——	45	1
10	·1000"	40	IDLE 60 WHEEL		——	——	50	1
11	·0909"	40	IDLE 60 WHEEL		——	——	55	1
12	·0833"	40	IDLE 50 WHEEL		——	——	60	1
14	·0714"	20	IDLE 70 WHEEL		——	——	35	1
16	·0625"	20	IDLE 70 WHEEL		——	——	40	1
18	·0556"	20	IDLE 70 WHEEL		——	——	45	1
19	·0526"	40	38	20	IDLE 55 WHEEL		50	2
20	·0500"	20	IDLE 70 WHEEL		——	——	50	1
22	·0455"	20	IDLE 70 WHEEL		——	——	55	1
24	·0417"	20	IDLE 70 WHEEL		——	——	60	1
25	·0400"	40	50	30	IDLE 45 WHEEL		75	2
26	·0385"	20	IDLE 70 WHEEL		——	——	65	1
28	·0357"	30	35	20	IDLE 50 WHEEL		60	2
32	·0313"	30	40	20	IDLE 55 WHEEL		60	2
36	·0278"	30	45	20	IDLE 55 WHEEL		60	2
40	·0250"	30	50	20	IDLE 55 WHEEL		60	2
44	·0227"	20	55	30	IDLE 50 WHEEL		60	2
46	·0217"	20	46•	30	IDLE 45 WHEEL		75	2
48	·0208"	20	60	35	IDLE 45 WHEEL		70	2
52	·0192"	20	50	25	IDLE 55 WHEEL		65	2
54	·0185"	20	45	20	IDLE 55 WHEEL		60	2
60	·0167"	20	50	25	IDLE 55 WHEEL		75	2
64	·0156"	35	40	20	60	30	70	3
72	·0139"	25	50	30	45	20	60	3
80	·0125"	25	50	35	70	30	75	3
88	·0114"	30	40	25	55	20	75	3
92	·0109"	20	46•	30	50	20	60	3
96	·0104"	30	40	20	60	25	75	3
104	·0096"	20	50	30	60	25	65	3
	·0087"	20	55	30	60	25	65	3
112	·0089"	25	50	30	60	20	70	3
120	·0083"	20	50	30	60	25	75	3
	·0058"	20	55	25	60	20	65	3
	·0043"	20	60	25	65	20	75	3
	·0037"	20	65	25	70	20	75	3
	·0018"	12•	65	20	70	20	75	3

METRIC PITCHES Fig. 45

FEED PER REV. MILLIMETERS	DRIVER	1ST STUD		2ND STUD		LEAD SCREW	SET-UP
		DRIVEN	DRIVER	DRIVEN	DRIVER		
0·20	21•	50	30	60	21•	70	3
0·25	30	40	21	60	21	70	3
0·30	21	60	45	50	21	70	3
0·35	35	40	21	50	21	70	3
0·40	21	50	21	IDLE 60 WHEEL		70	2
0·45	45	40	21	50	21	70	3
0·50	21	50	45	40	20	60	3
0·60	21	50	45	40	30	75	3
0·70	21	50	21	IDLE 60 WHEEL		40	2
0·75	45	40	35	50	21	70	3
0·80	21	50	45	IDLE 40 WHEEL		75	2
0·90	45	25	21	40	21	70	3
1·00	45	40	21	IDLE 50 WHEEL		75	2
1·10	45	50	55	40	21	75	3
1·20	45	25	30	50	21	60	3
1·25	45	40	21	IDLE 50 WHEEL		60	2
1·30	65	25	21	40	21	70	3
1·40	45	25	35	50	21	60	3
1·50	21	50	45	IDLE 35 WHEEL		40	2
1·60	45	25	21	IDLE 55 WHEEL		75	2
1·75	45	20	35	50	21	60	3
1·80	30	40	45	25	21	50	3
2·00	60	40	21	IDLE 55 WHEEL		50	2
2·25	45	40	60	40•	21	50	3
2·50	45	30	21	IDLE 50 WHEEL		40	2
2·75	55	20	30	40	21	50	3
3·00	45	25	21	IDLE 60 WHEEL		40	2
3·50	60	20	35	40	21	50	3

LEADSCREW 8 THREADS PER INCH

● Not a Standard Gear. Available as an extra.

★ 12 tooth Tumbler Cluster Gear available as an extra.

The tumbler reverse lever should not be shifted during thread cutting operations, as such movement may alter the position of the headstock spindle relative to the leadscrew, thereby causing split threads.

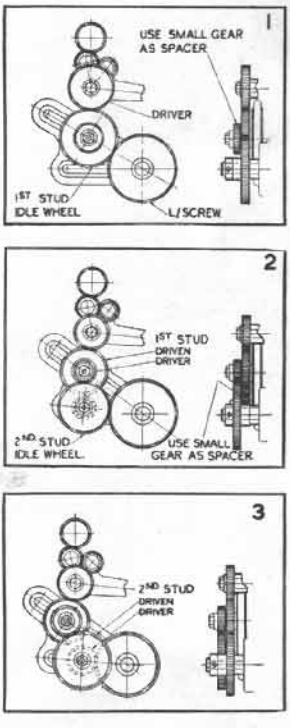


Fig. 46

POWER CROSS FEED

The power traverse to the cross slide is obtained from the leadscrew through bevel gearing and spur gearing with a ball type clutch to a pinion located endwise in, and bearing in, the saddle and keyed to the cross feed screw.

For most purposes the rate of power cross traverse may be considered as being the same as the corresponding longitudinal saddle feed though it is actually 0·9472 x the longitudinal feed.

As with the saddle traverse the reversal of the cross feed is obtained by reversing the leadscrew. The feed is engaged by drawing the push/pull knob, item 10 on figure 39, approximately $\frac{3}{16}$" forward. Since the clutch takes the form of two steel balls riding up an incline to engage with two longitudinal slots in an intermediate gear, it will be necessary to 'feel' for the position at which the engagement can be effected. The cross slide cannot over run on the inward movement because a stop pin fitted to the cross slide end bracket, will, at the limit of the inward movement push the knob inwards to disengage the feed.

Important: the cross slide should never be moved towards the operator, either manually, or by means of the power traverse, for a distance of more than $6\frac{3}{8}$" from the extreme inward position because, if the feedscrew becomes disengaged from the pinion which slides on it difficulty will be experienced in lining up the key in the pinion with the keyway in the feedscrew. If this problem should, at any time, arise, remove the screws securing the cross slide end bracket and push the cross slide so that its front end is roughly flush with the front face of the saddle. Remove the screws which secure the crossfeed nut and withdraw both the nut and the pinion. Screw the nut on to the cross slide feedscrew. Push the pinion on to the feedscrew. Assemble the feedscrew with feed nut and pinion to the saddle, rotating the feedscrew sufficiently to allow the pinion to engage with the mating gear in the apron. Replace the screws which secure the feed nut. When finally tightening the screws which secure the end bracket, the feedscrew should be in its innermost position.

If at any time it is desired to remove the apron, the leadscrew must first be withdrawn since, when the apron securing screws have been removed, the apron must be lowered $\frac{1}{2}$" before it can be moved either sideways or forwards.

If at any time the hand traverse pinion has to be removed, after replacement it is important to ensure that the plastic seal is oiltight since the hole which it plugs is below level of the oil in the reservoir.

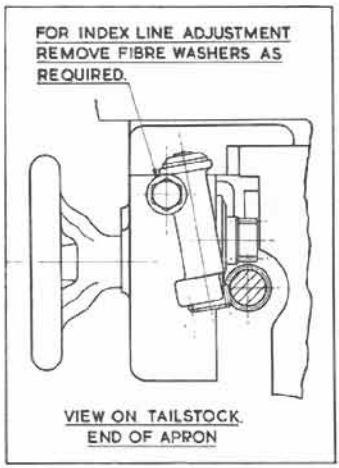


Fig. 47—Thread Dial Indicator Mounting for Super 7 Lathe

THREAD DIAL INDICATOR

Every lathe is provided with a machined facing on the right hand side of the saddle, drilled and tapped ready to receive this unit. Provision is made for the alignment of the dial markings with the zero mark on the indicator body as shown in Fig. 47. The indicator can be readily engaged or disengaged, and operates as follows:—

(1) For even number threads the clasp nut can be engaged at any numbered mark on the dial.

(2) Odd number threads should always be engaged at the same number or any alternate number.

(3) For half threads per inch, always engage the same number.

(4) For other threads, m/m sizes, etc., it is recommended that the clasp nut should not be disengaged.

Note. Threads that are exact multiples of the leadscrew pitch (8 T.P.I.) do not require the use of an indicator.

REPLACEMENT OF HEADSTOCK VEE BELT

In order to change the vee belt it is necessary partially to dismantle the countershaft and headstock spindles. Both spindles must be withdrawn from their respective bearings sufficiently to allow removal of the vee belt.

The headstock ball bearings are arranged with an interference fit on the spindle diameter. Reassembly will be greatly facilitated if the appropriate portion of the spindle is greased before introduction to the ball bearings.

Countershaft Clutch Unit

For both dismantling and reassembly reference should be made to Fig. 37 on Page 27 and paragraphs "f" and "g" on Page 8 under "Assembly Instructions for Motorising Equipment".

With the primary belt drive guard open and belt tensioning lever in the released position, release the grubscrew securing the countershaft cone pulley and rotate the shaft so that the key is in the position shown in Fig. 7 on Page 8. Slide the pulley to the right and remove the woodruff key. Ease the circlip (to the right of the left hand bearing) from its groove. Withdraw the shaft complete with clutch and two step pulley, to the left, far enough to enable the old belt to be removed and the new one to be fitted. Reassemble as described in paragraphs "f" and "g" on Page 8. Line up the countershaft vee cone pulley as in Fig. 8 Page 8.

Headstock Spindle

Before attempting to dismantle the headstock spindle, remove the grub screw at the front end of the headstock below the main spindle and insert a suitable pointed pin (approximately $\frac{1}{16}$") into the hole so that it passes completely through the Wick. This will ensure that the Wick is not forced upwards through the bearing by the compression spring below it, and will facilitate subsequent replacement of the spindle.

First read the description and instructions with regard to **Adjustment of Spindle Bearings** (page 25) which will provide detailed information on the construction and operation of the headstock spindle.

Spindle Withdrawal. Refer to Fig. 34. Slacken screw (3) just sufficiently to allow adjusting collar (4) to be turned.

Remove adjusting collar.

Withdraw sleeve gear (7) and remove woodruff key.

Release the screw securing the 60T backgear to the spindle.

Tap out the spindle in the direction towards the tailstock until it is free of the interference fit in the rear ball bearings.

Complete the withdrawal of the spindle and remove the pulley and 60T backgear, which should be held together as a single unit. The distance sleeve (6) should be left in position, supported by the bore of the screwed ring (1)

Remove and replace vee belt.

Reassemble.

Adjust the bearings as per the instructions on Pages 25 & 26.

Set the 60T backgear in the axial position which allows approximately ·005" end play between the cone pulley and the distance sleeve (6).

CHUCK FITTING

(1) Before screwing backplate on to spindle nose, ensure the cleanliness of spindle nose, backplate register faces and thread.

(2) Screw backplate firmly on spindle nose.

(3) Machine register diameter to light tap fit in chuck body.

Note.—With three-jaw gear scroll chucks, contact is made with the outer face of the chuck body and clearance with the inner face, see Fig. 48.
With four-jaw independent chucks, contact is made with the inner face of the chuck body, see Fig. 49.
With 6" four-jaw independent chucks contact is also made with the inner face of the chuck body but the threaded portion of the backplate is housed in the chuck body to minimise chuck overhang, see Fig. 50.

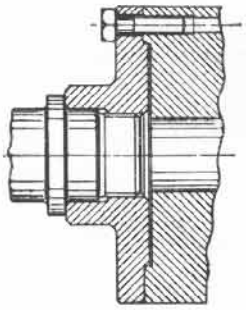


Fig. 48

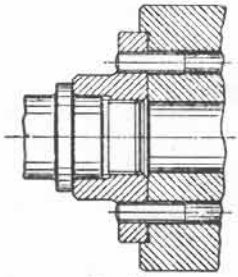


Fig. 49

(4) Remove backplate from spindle nose. Mark out and drill clearance holes for three-jaw chuck locking bolts, and core diameter tapping holes for four-jaw chuck locking bolts. Remove all burrs with countersink or scraper. Care should be taken when marking out the holes to ensure clearance between the bore of the hole and bolt stem. With the four-jaw chuck backplate, the drilling centres can easily be marked by means of a centre punch with the shank diameter acting as a guide through the chuck body holes. After centring one hole, drill, tap and lock the backplate lightly with a locking bolt. The other three holes can then be centred without fear of the backplate shifting.

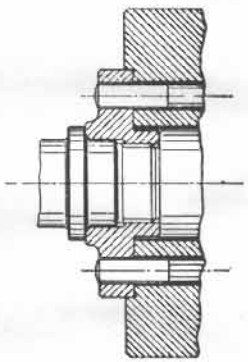


Fig. 50

(5) When tightening locking bolts, apply pressure evenly and gradually to all four in rotation.

CHUCK BACKPLATES & THREADED BODY CHUCKS

Register bores are held to very close limits. When backplates or threaded body chucks are supplied as separate units after the machine has left these works the register bore may need very light scraping or polishing with fine emery cloth.

Do not screw equipment on to the spindle nose without ensuring that the spindle register diameter is lightly smeared with fine oil.

INSTRUCTIONS FOR ORDERING REPLACEMENT PARTS

The following information should be supplied with the order:—

1. Type and Serial Number of the lathe, and in the case of lathes with gearboxes fitted, also the serial number of the gearbox.
   For location of numbers see figs. 51 and 52.
2. Section letter and item numbers of part as listed.
3. Quantity required.

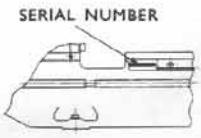


Fig. 51

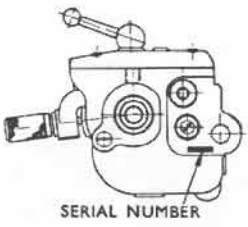
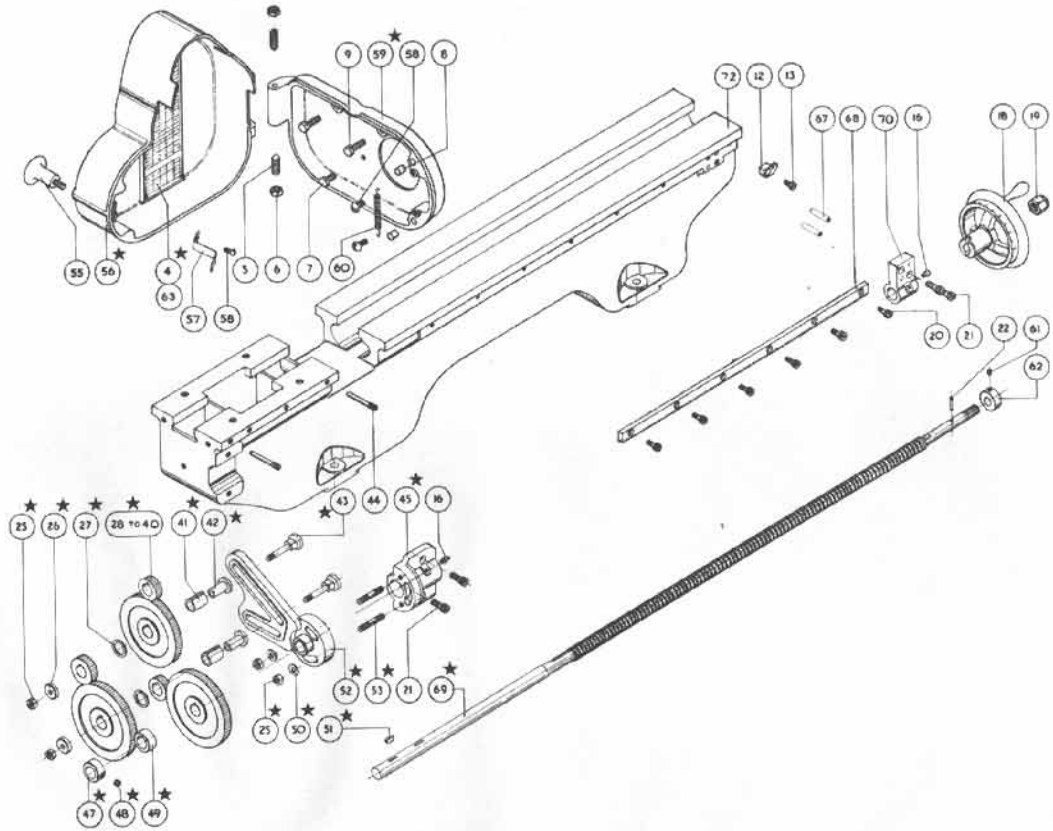


Fig. 52

As it is the Company's policy to improve its products whenever opportunity occurs, designs are liable to modification at any time. In some cases, due to the nature of the part, it will be necessary for us to supply additional related parts, particularly if the item required has been altered.

G



BED, LEADSCREW AND GEAR TRAIN ASSEMBLY

SECTION G

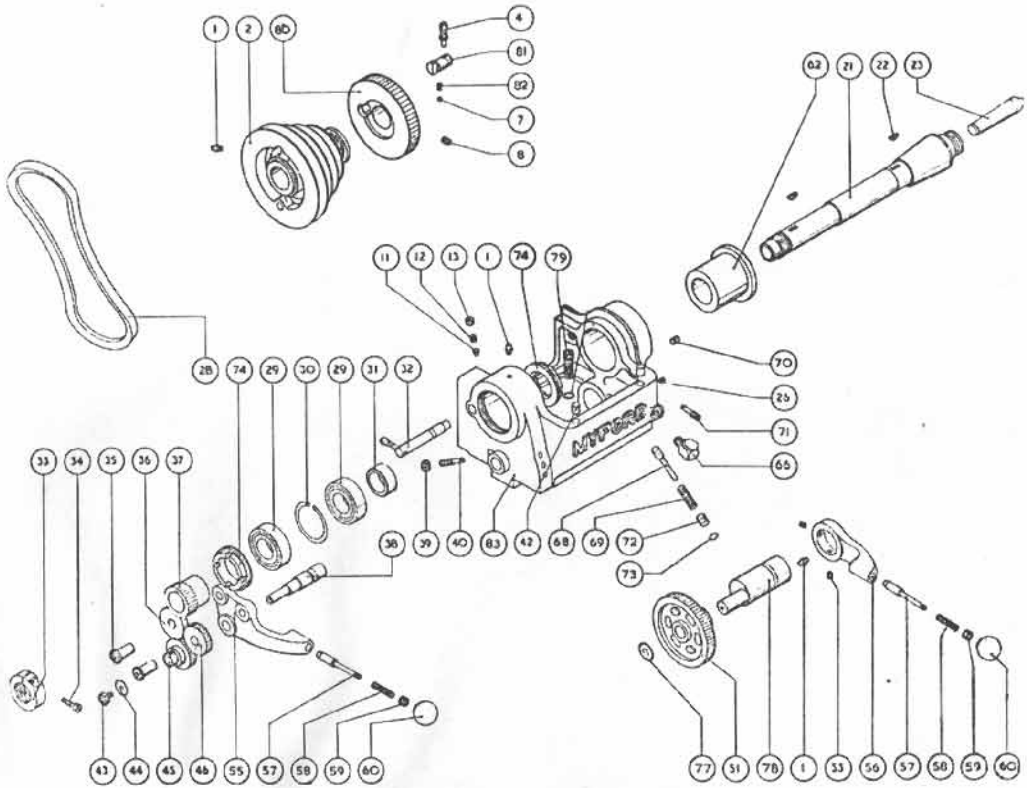
BED, LEADSCREW and GEAR TRAIN ASSEMBLY

Drg. Ref.	Part No.	Description	No. Off/Mc.
*G4	A2639	Screwcutting Chart	1
G5	A2024	Hinge Screw	2
G6		Hexagon Lock Nut (3/16" B.S.F.)	2
G7		Hexagon Head Set Screw (1/4" B.S.F. x 1/2")	1
G8	A2023	Pad	2
G9		Hexagon Head Set Screw (1/4" B.S.F. x 7/8")	2
G12	75/1938/1	Pointer	1
G13		Cheese Head Screw (2 B.A. x 3/8")	1
G16	65000	Oil Nipple (2 B.A.)	2
G18	A4735	Leadscrew Handwheel Assembly (Metric A4828)	1
G19		'Simmonds' Nut (7/16" B.S.F.)	1
†G20		Cap Screw (2 B.A. x 1/2")	6
G21		Cap Screw (1/4" B.S.F. x 3/8")	4
G22	75/1114	Pin	1
*G25		Hexagon Nut (1/4" B.S.F.)	4
*G26	A1498	Washer	2
*G27	A1499	Change Gear Spacer	2
*G28	11285/20	20T. Change Gear	2
*G29	11285/25	25T. " "	1
*G30	11285/30	30T. " "	1
*G31	11285/35	35T. " "	1
*G32	11285/38	38T. " "	1
*G33	11285/40	40T. " "	1
*G34	11285/45	45T. " "	1
*G35	11285/50	50T. " "	1
*G36	11285/55	55T. " "	1
*G37	11285/60	60T. " "	1
*G38	11285/65	65T. " "	1
*G39	11285/70	70T. " "	1
*G40	11285/75	75T. " "	1
*G41	A1500	Change Gear Bush	2
*G42	A1501	Change Gear Sleeve	2
*G43	A1496	Change Gear Stud	2
G44	A2137	Thrust Screw	2
*G45	74/1134/1	L.H. Leadscrew Bracket Assembly	1
*G47	11286	Collar	1
*G48	11278	Grubscrew	1
*G49	A2604	Spacer	1
*G50		Washer (1/4")	2
*G51	70002	Woodruff Key No. 404	1
*G52	A4736	Change Gear Quadrant Assembly	1
*G53	A4725	Stud	2
G55	80004	Knob (F.W. Evans, Ref. 780)	1
*G56	A1959/1	Change Gear Guard	1
G57	A3018	Spring Clip	1
G58		Round Head Screw (2 B.A. x 3/8")	3
*G59	A1960/1	Change Gear Guard Backplate	1
G60	A2012	Tension Spring	1
G61		Socket Set Screw (1/4" B.S.F. x 1/4") (Cup Point)	1
G62	75/1115/1	Thrust Collar	1
G63		Rivet (No. 0 x 3/16") (for G4)	6
G67	A9287	Dowel	2
†G68	A9179	Rack	1
†*G69	A9180	Leadscrew	1
G70	G9289/2	R.H. Leadscrew Bracket Assembly	1
†G72	A8724/1	Bed	1

*These parts do not apply to Super 7B Quick Change Lathes.

†G20	For long bed Lathe	10 off
†G68	For long bed Lathe	A9222
†*G69	For long bed Lathe	A9223
†G72	For long bed Lathe	A8779/1

H



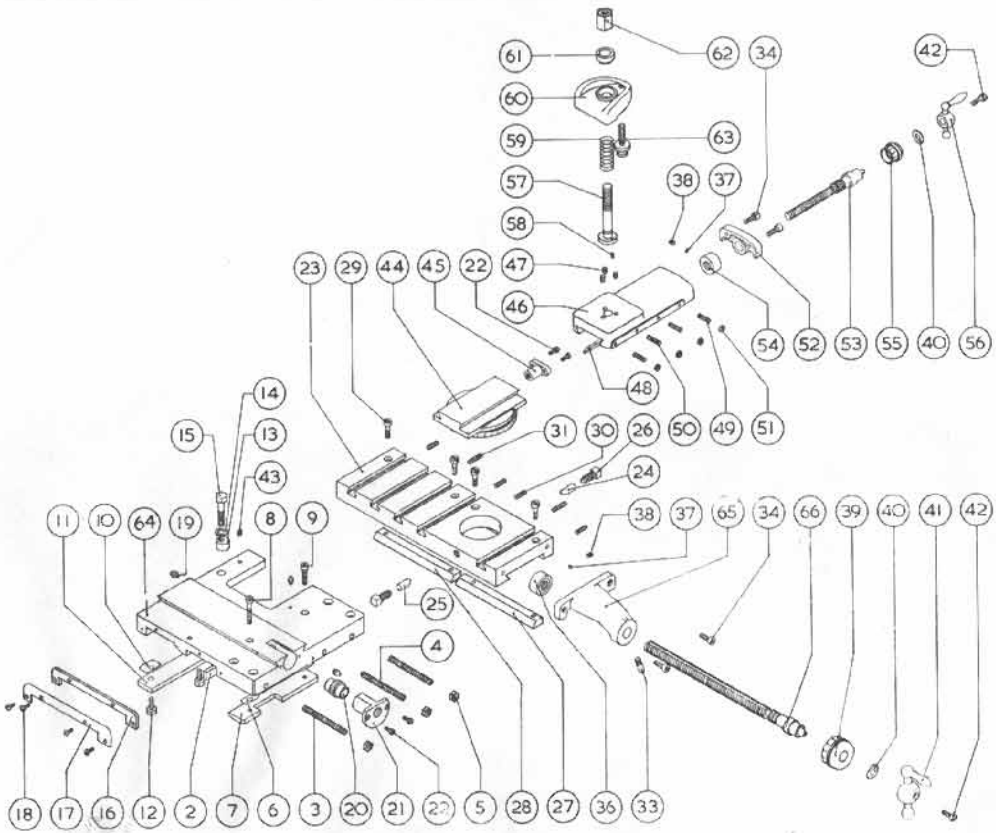
HEADSTOCK ASSEMBLY

SECTION H

HEADSTOCK ASSEMBLY

Drg. Ref.	Part No.	Description	No. Off/Mc.
H1	65000	Oil Nipple (Tecalemit NC6055)	3
H2	A1994	Vee Cone Pulley Assembly (Includes H1)	1
H4	A2004/1	Lever for Backgear Key	1
H7	73008	Steel Ball ($\frac{3}{16}$" Dia.)	2
H8		Socket Set Screw ($\frac{1}{4}$" B.S.F. x $\frac{5}{16}$") (Cup Point)	1
H11	A2001	Plunger	1
H12	A1610	Spring	1
H13		Socket Set Screw ($\frac{5}{16}$" B.S.F. x $\frac{1}{4}$") (Cup Point)	1
H21	A1992	Spindle	1
H22	70002	Woodruff Key No. 404	2
H23	75/1249	60° Centre (Soft) (No. 2 M.T.)	1
H26		Socket Set Screw (2 B.A. x $\frac{3}{16}$") (Cup Point)	1
H28	70000	Vee Belt (Headstock) (A29·5)	1
H29	73003	Ball Bearing (RHP 7205)	2
H30	A1991	Bearing Spacing Washer	1
H31	A2055	Distance Sleeve	1
H32	A2751	Pulley Lock Assembly	1
H33	A2056	Adjusting Collar	1
H34		Cap Screw (2 B.A. x $\frac{3}{4}$")	1
H35	A8244	Gear Pin Assembly	2
H36	A2006	30T. Tumbler Gear	1
H37	A1995	30T. Gear	1
H38	A2005/2	Tumbler Reverse Stud	1
H39		Hexagon Locknut ($\frac{1}{4}$" B.S.F.)	1
H40	A1997/1	Tumbler Reverse Locating Screw	1
H42	A2023	Pad	2
H43	A1999	Tumbler Sleeve Gear Retaining Screw	1
H44	11287	Washer	1
H45	10351	Tumbler Sleeve Gear Assembly	1
H46	A2007	28T. Tumbler Gear	1
H51	A1939	17/53T. Backgear Cluster	1
H53		Socket Set Screw (2 B.A. x $\frac{5}{16}$") (Cup Point)	2
H55	A1948/1	Tumbler Reverse Lever	1
H56	A1949/1	Backgear Lever	1
H57	A3021	Plunger	2
H58	A3025	Spring	2
H59	75/1220	Screwed Bush	2
H60	80001	Knob (1" Dia. Black x $\frac{3}{16}$" B.S.W.)	2
H62	A3609	Spindle Bearing (Front)	1
H66	65003	Oil Cup (Adams LS No. 2630)	1
H68	A3610/1	Lubricating Wick	1
H69	A3611/1	Spring	1
H70		Socket Set Screw ($\frac{1}{4}$" B.S.F. x $\frac{3}{16}$") (Cup Point)	1
H71	A1987/1	Backgear Eccentric Retaining Screw	1
H72	A4770	Sealing Plug	1
H73	65006	"O" Ring (B.S. 011)	1
H74	G2340	Adjusting Ring	2
H77		Circlip (Anderton Type 1500–485E)	1
H78	A1986/1	Backgear Eccentric	1
H79		Cap Screw (M8 x 1·25 x 25 mm)	4
H80	A1993/2	60T. Backgear Assembly (Includes H4, H7, H8, H81 & H82)	1
H81	A2002/2	Backgear Key	1
H82	A8913	Spring	1
H83	A1934/7	Headstock	1
H84	11219	Name Plate (not shown)	1
H85		Rivet (Parker Kalon No. 0 x $\frac{1}{4}$") (not shown)	2

KA



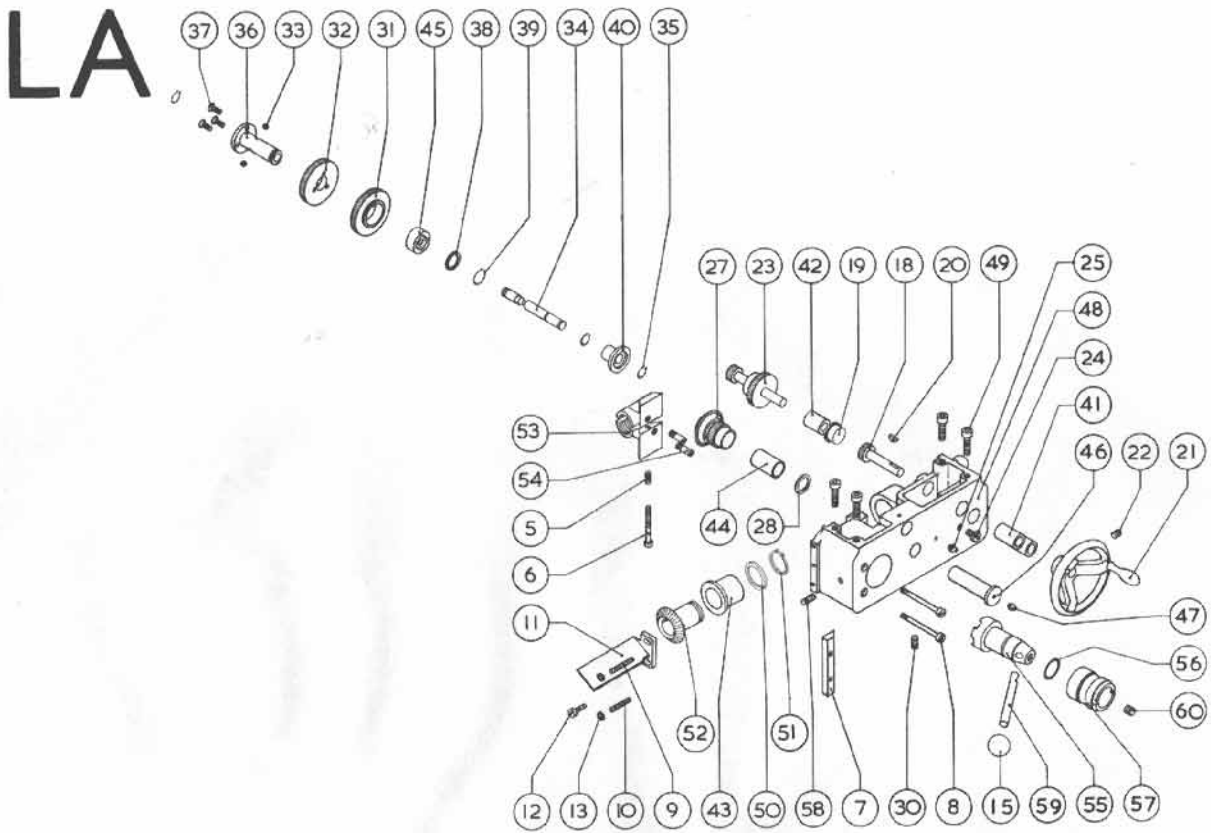
CARRIAGE ASSEMBLY

SECTION KA

CARRIAGE ASSEMBLY

Drg. Ref.	Part No.	Description	No. Off/Mc.
KA2	A9182	Gib Strip—Saddle	1
KA3	A9183	Adjusting Screw—Gib Strip	2
KA4	A9184	Adjusting Screw—Gib Strip	1
KA5		Hex. Lock Nut (¼″ B.S.F.)	3
KA6	75/1305	Laminated Shim—Front Strip	2
KA7	A9185	Saddle Strip—Front	1
KA8		Cap Hd. Screw—Strip Sec'g (¼″ B.S.F. x 1¼″)	1
KA9		Cap Hd. Screw—Strip Sec'g (¼″ B.S.F. x ⅞″)	1
KA10	75/1304	Laminated Shim—Rear Strip	3
KA11	A2122	Saddle Strip—Rear	1
KA12		Hex. Hd. Set Screw—Strip Sec'g (¼″ B.S.F. x ⅜″)	3
KA13	75/1312	Saddle Clamp Eccentric	1
KA14		Washer (5/16″)	1
KA15	11296	Hex. Hd. Bolt (5/16″ B.S.F. x 1½″)	1
KA16	A8735	Wiper	1
KA17	A8736	Wiper Housing	1
KA18		Rd. Hd. Screw—Wiper Sec'g (4 B.A. x ⅜″)	4
KA19	65000	Oil Nipple (Tecalemit No. 6055)	3
KA20	A9186	Feed Gear	1
KA21	10014	Feed Nut (Metric 10018)	1
KA22		Ch. Hd. Screw—Nut Sec'g (4 B.A. x ⅜″)	4
KA23	A2060/2	Cross Slide	1
KA24	A2067	Thrust Pad—R.H.	1
KA25	A2067A	Thrust Pad—L.H.	1
KA26	11314	Sq. Hd. Screw—Thrust Pad (⅜″ B.S.F. x ¾″) (Half Dog Point)	2
KA27	A2069	Gib Strip—Front	1
KA28	A2068	Gib Strip—Rear	1
KA29	A2149	Ch. Hd. Screw—Strip Sec'g	4
KA30		Socket Set Screw—Wedglok (M5 x 0·8 x 16 mm) (Dog Point)	4
KA31		Socket Set Screw—Slide Locking (M5 x 0·8 x 20 mm)	2
KA33	A9189	Knock off Peg—End Bracket	1
KA34		Cap Hd. Screw—Bracket Sec'g (2 B.A. x ⅝″)	4
KA36	A9191/1	Adjusting Collar	1
KA37	11253	Pad—Adjusting Collar (0·190″ dia.)	2
KA38		Socket Set Screw—Collar Sec'g (¼″ B.S.F. x 3/16″) (Half Dog Point)	2
KA39	A2072/1	Micrometer Dial (Metric A3250/1)	1
KA40	A2058	Diaphragm Washer	2
KA41	A2073	Ball Handle Assembly	1
KA42	A1541/1	Screw—Ball Handle Sec'g	2
KA43	11276	Grubscrew—Coolant Bracket Hole Sealing	1
KA44	A2076	Top Slide Base	1
KA45	A1456	Feed Nut (Metric A2166)	1
KA46	A2077	Top Slide	1
KA47	11264	Grubscrew (2 B.A. x ¼″)	3
KA48	A2078/2	Gib Strip	1
KA49	11269	Adjusting Screw—Gib Strip	2
KA50	11274	Adjusting Screw—Gib Strip	2
KA51		Hex. Locknut (2 B.A.)	4
KA52	A1398	End Plate	1
KA53	A2092/1	Feed Screw Assy (Metric A2282/1)	1
KA54	A2229/1	Adjusting Collar	1
KA55	A2079	Micrometer Dial (Metric A3249)	1
KA56	A2093	Ball Handle Assy	1
KA57	75/1406	Tool Clamp Stud	1
KA58	75/1411	Pin—Tool Clamp Stud	1
KA59	A2806	Spring	1
KA60	74/1409/1	Tool Clamp	1
KA61	75/1410	Spherical Washer	1
KA62	75/1412	Nut—Tool Clamp	1
KA63	75/1413	Adjusting Screw Assy	1
KA64	A9181/1	Saddle	1
KA65	A9188/1	End Bracket	1
KA66	A9190/1	Feed Screw (Metric A9307/1)	1

LA



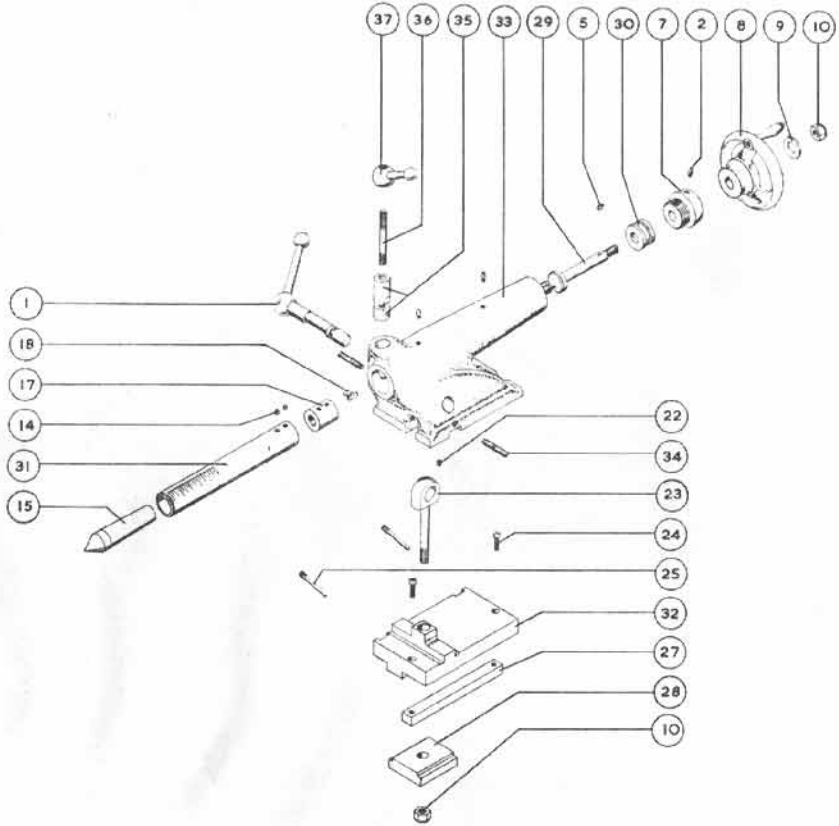
APRON ASSEMBLY

SECTION LA

APRON ASSEMBLY

Drg. Ref.	Part No.	Description	No. Off/Mc.
LA5	A4729	Spring—Leadscrew Nut	1
LA6		Cap Hd. Screw—Leadscrew Nut (2 B.A. x 1¾")	1
LA7	A2082	Gib Strip—Leadscrew Nut	1
LA8	A9193	Ch. Hd. Screw—Strip Securing	2
LA9	A9194	Adjusting Screw—Gib Strip	1
LA10	A9195	Adjusting Screw—Gib Strip	1
LA11	A9196	Leadscrew Guard	1
LA12		Hex. Hd. Set Screw (2 B.A. x ½")	1
LA13		Hex. Locknut (2 B.A.)	2
LA15	80002	Ball Knob (KB5/100)	1
LA18	A9198	Hand Traverse Pinion	1
LA19	65004	Sealing Plug—Apron (AQ330/15)	1
LA20	70002	Woodruff Key (No. 404)	1
LA21	A2087	Handwheel Assembly	1
LA22		Socket Set Screw (¼" B.S.F. x ¼") (Knurled Cup Point)	1
LA23	A9199	Rack Pinion Assembly	1
LA24	A2531	Oil Level Plug	1
LA25	65000	Oil Nipple (Tecalemit NC6055)	1
LA27	A9201	Bevel Gear Cluster Assembly (includes LA44)	1
LA28	A9202	Thrust Washer	1
LA30		Socket Set Screw (¼" B.S.F. x ½") (Knurled Cup Point)	1
LA31	A9204	Clutch Gear Assembly (includes LA45)	1
LA32	A9205	Drive Gear	1
LA33	73010	Ball—Clutch (5 mm ⌀)	2
LA34	A9206	Operating Spindle	1
LA35		Circlip (Anderton 1400—⅜")	3
LA36	A9207	Drive Shaft	1
LA37		C's'k Hd. Socket Screw (2 B.A. x ⅜")	3
LA38	A9782	Washer—Drive Shaft	1
LA39		Circlip—Drive Shaft (Anderton 1400—⅜")	1
LA40	A9208	Knob Operating Spindle	1
LA41	A9210	'Oilite' Bush	2
LA42	A9211	'Oilite' Bush	1
LA43	A9212/1	'Oilite' Bush—Flanged	1
LA44	A7595	'Oilite' Bush	1
LA45	A9220	Clutch Insert	1
LA46	A9203/1	Stud—Gear Cluster	1
LA47	65001	Oil Nipple (Tecalemit NC6057)	1
LA48	10025/1	Apron Assembly (includes LA41, LA42, LA43)	1
LA49		Cap Screw (M6 x 1 x 25 mm)	4
LA50	10217	Thrust Washer	1
LA51	10431	Circlip	1
LA52	A9200/1	Bevel Pinion	1
LA53	A1975/3	Leadscrew Nut	1 set
LA54	10508	Cam Peg	2
LA55	10528	Cam	1
LA56	65007	'O' Ring (BS/USA115)	1
LA57	10529	Eccentric Sleeve	1
LA58		Socket Set Screw (5/16" B.S.F. x ⅜", Half Dog Point)	1
LA59	10530	Lever	1
LA60		Socket Set Screw (2 B.A. x ¼", Cup Point)	1
LA61	10424	Guard Plate (not illustrated)	1

M

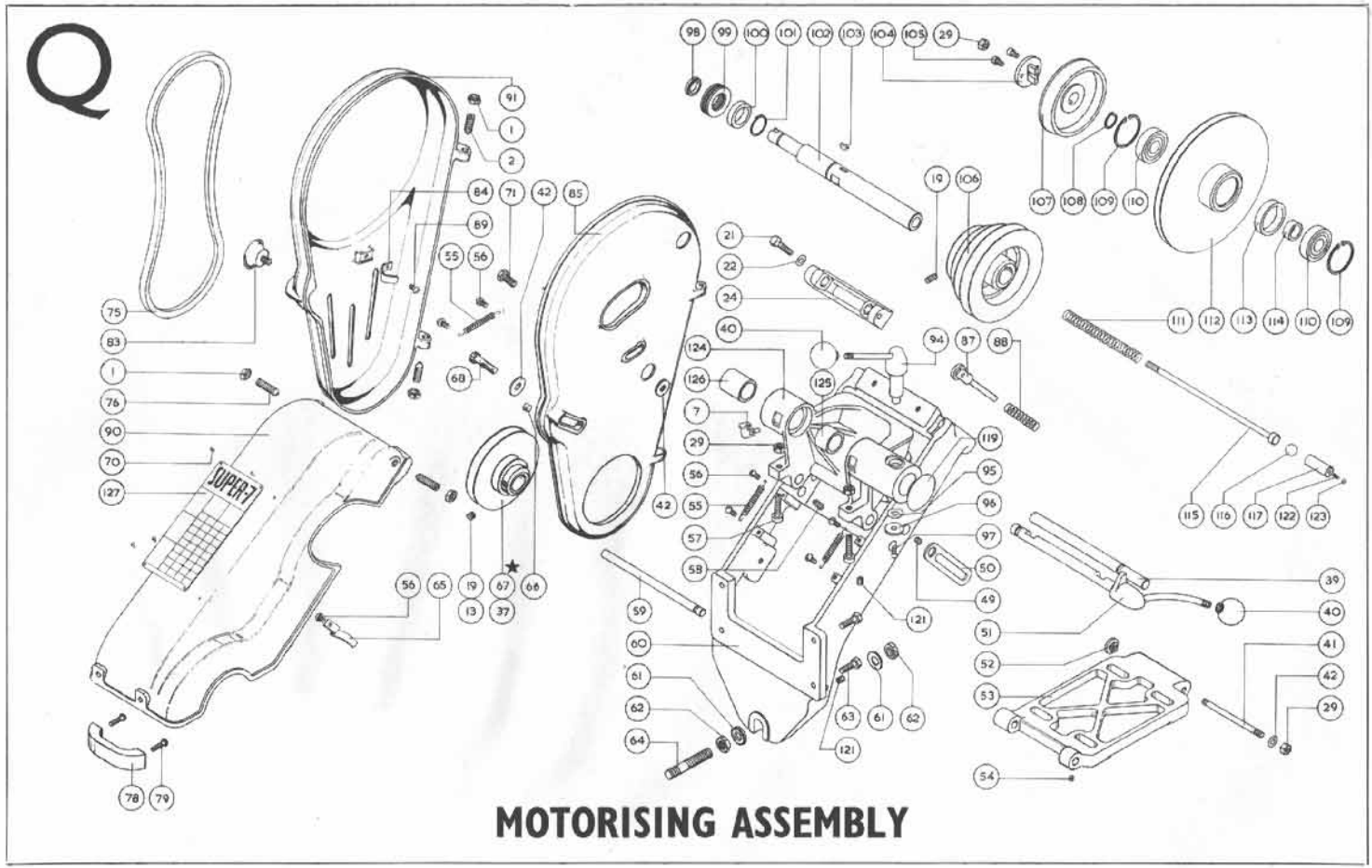


TAILSTOCK ASSEMBLY

SECTION M

TAILSTOCK ASSEMBLY

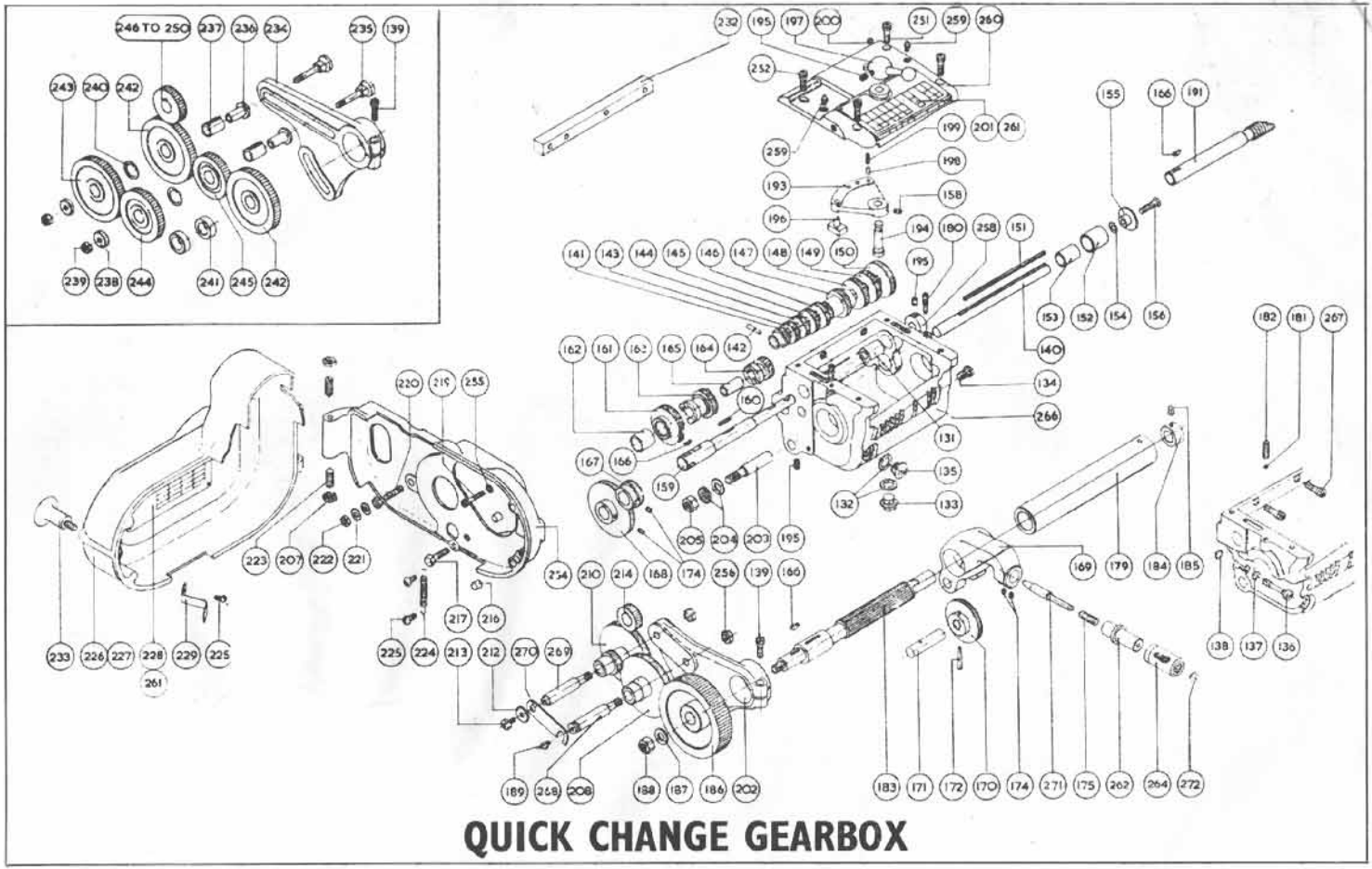
Drg. Ref.	Part No.	Description	No. Off/Mc.
M1	A2138	Eccentric & Lever Assembly	1
M2	65000	Oil Nipple (2 B.A.)	3
M5	70002	Woodruff Key No. 404	1
M7	A2114	Cap	1
M8	A2141	Handwheel Assembly	1
M9		Washer ($\frac{3}{8}$")	1
M10		'Simmonds' Nut ($\frac{3}{8}$" B.S.F.)	2
M14		Socket Set Screw (2 B.A. x $\frac{3}{16}$") (Cup Point)	2
M15	75/1248	60° Centre (Hard) (No. 2 M.T.)	1
M17	A2117	Barrel Feed Nut	1
M18	A2144	Barrel Key	1
M22	A2139	Eccentric Locating Screw	1
M23	A2140	Eye Bolt	1
M24		Cap Screw (2 B.A. x $\frac{3}{8}$")	2
M25	A2137	Thrust Screw	2
M27	A2136	Gib Strip	1
M28	75/1514	Clamp Plate	1
M29	A2116/1	Barrel Feed Screw	1
M30	73005	Thrust Bearing (R. & M. LT $\frac{1}{2}$" B)	1
M31	A2145	Barrel Assembly (Includes M17) (Metric A8242)	1
M32	A2099/1	Tailstock Base	1
M33	A2098/1	Tailstock Body	1
M34	A2146/1	Set Over Screw	2
M35	A2118/1	Pad Bolt and Bush	1
M36	10299	Stud	1
M37	10297	Barrel Locking Lever	1


Q
SUPER 7
MOTORISING ASSEMBLY

SECTION Q
MOTORISING ASSEMBLY

Drg. Ref.	Part No.	Description	No. Off/Mc.
Q1		Hexagon Locknut (5/16" B.S.F.)	4
Q2	A2024	Hinge Screw	2
Q7	65002	Oil Cup	2
Q13		Socket Set Screw Wedglok (1/4" B.S.F. x 5/16") (Cup Point)	1
Q19		Socket Set Screw (1/4" B.S.F. x 3/8") (Cup Point)	1
Q21		Hexagon Head Set Screw (1/4" B.S.F. x 1")	2
Q22		Washer (1/4")	2
Q24	A1941	Hinge Bracket	1
Q29		Hexagon Nut (1/4" B.S.F.)	4
Q37	A2273/1	Motor Pulley (1/2" Dia. Bore)	1
Q39	A2014	Swing Head Pivot Shaft	1
Q40	80003	Knob (1 1/4" Dia. x 5/16" Whitworth)	2
Q41	A2050	Clamp Screw	1
Q42	A2022	Washer	4
Q49		Socket Set Screw (1/4" B.S.F. x 1/4") (Cup Point)	1
Q50	A2046	Tie Bar	2
Q51	A2038/1	Cam Shaft and Lever Assembly	1
Q52	A2051	Clamp Screw Head	1
Q53	A1945	Motor Platform	1
Q54		Socket Set Screw (2 B.A. x 1/4") (Cup Point)	1
Q55	A2012	Tension Spring	3
Q56		Round Head Screw (2 B.A. x 5/16")	8
Q57	A2123	Adjusting Screw	2
Q58		Socket Set Screw (1/4" B.S.F. x 1/2") (Half Dog Point)	1
Q59	A2045	Pivot Pin (Motor Platform)	1
Q60	A1933/1	Countershaft Arm	1
Q61		Washer (7/16")	2
Q62		Hexagon Locknut (7/16" B.S.F.)	2
Q63		Hexagon Head Set Screw (1/4" B.S.F. x 7/8")	4
Q64	A2011	Stud	1
Q65	A2044	Spring Clip	2
Q66	A2023	Pad	1
*Q67	A2028/1	Motor Pulley (3/8" Bore)	1
Q68		Cap Screw (1/4" B.S.F. x 1 1/4")	1
Q70		Rivets (No. O x 1/4")	4
Q71		Hexagon Head Set Screw (1/4" B.S.F. x 3/4")	1
Q75	70001	Vee Belt (Motor Drive) (M33-5)	1
Q76	A2043	Hinge Screw	2
Q78	80005	Handle (Everite Ref. 243/3)	1
Q79		Round Head Screw (3/16" Whit. x 3/4")	2
Q83	80004	Knob (F. W. Evans, Ref. 780)	1
Q84	A3020	Spring Clip	1
Q85	A2961	Motor Drive Belt Guard Backplate	1
Q87	A4733	Roller and Plunger Assembly	1
Q88	A2939	Spring	1
Q89		Round Head Screw (2 B.A. x 5/16")	1
Q90	A1935/4	Headstock Belt Guard	1
Q91	A2962	Motor Drive Belt Guard	1
Q94	A3324	Cam Shaft Assembly (Clutch Operating)	1
Q95	A2058	Diaphragm Washer	1
Q96	A3326	Washer	1
Q97		Socket Countersunk Screw (2 B.A. x 1/2")	1
Q98	A3329	Abutment Washer	1
Q99	73006	Thrust Bearing (R. & M. FT 7/8")	1
Q100	A3330	Collar	1
Q101		Cir-Clip (Anderton 1400—7/8")	1
Q102	A3319/1	Countershaft	1
Q103	70002	Woodruff Key (No. 404)	1
Q104	A3320/1	Driver Plate	1
Q105		Cap Screw (2 B.A. x 3/8")	2
Q106	A3312/1	Cone Pulley	1
Q107	A3313/1	Clutch Plate	1
Q108		Cir-Clip (Anderton 1400—5/8")	1
Q109		Cir-Clip (Anderton 1300—1 9/16")	2
Q110	73004	Ball Bearing (R.H. P.L.J. 5/8 RS)	2
Q111	A3359	Spring	1
Q112	A3311	Twin Vee Pulley	1
Q113	A3328	Spacer (Outer)	1
Q114	A3327	Spacer (Inner)	1
Q115	A3321	Push Rod	1
Q116	73009	Steel Ball (1/2" Dia.)	1
Q117	A3322	Push Bar	1
Q119	A3366/1	End Cap	1
Q121		Socket Set Screw (1/4" B.S.F. x 5/16") (Half Dog)	2
Q122	A2003	Spring	1
Q123	73008	Steel Ball (3/16" Dia.)	1
Q124	A5487/1	Swing Head Ass'y (includes Q7, Q29, Q57, Q125 & Q126)	1
Q125	A9963	'Oilite' Bush	1
Q126	A9964	'Oilite' Bush	1
Q127	10400	Speed Plate	1

* Standard Bore Size–other bores available–state exact size when ordering.



QUICK CHANGE GEARBOX

PARTS LIST FOR
QUICK CHANGE GEARBOX

Drg. Ref.	Part No.	Description	No. Off/Mc.
131	A2295	Bush	1
132	65015	Sealing Washer (Dowty Selon Mark 5)	2
133	65081	Drain Plug (¼" B.S.P.)	1
134	A2531	Oil Level Plug	1
135	A2698	Plug	1
136	A2699	Captive Screw	1
137		Spring Washer (¼" Terrys 159)	1
138	65006	Rubber Sealing Washer (BS/USA 011)	1
139		Cap Screw (¼" B.S.F. x ¾")	1
140	A3005	Shaft	1
141	A2284	16T. Gear	1
142		Taper Pin (No. 0 x ¾")	1
143	A2304/18	18T. Gear	1
144	A2304/19	19T. Gear	1
145	A2304/20	20T. Gear	1
146	A2304/22	22T. Gear	1
147	A2301	24T. Gear	1
148	A2304/26	26T. Gear	1
149	A2304/28	28T. Gear	1
150	A2304/32	32T. Gear	1
151	A3006	Key	1
152	A3003	Bush	1
153	A3007	Clamping Sleeve	1
154	A2752	Laminated Washer	1
155	A2492	Clamp Washer	1
156		Socket Countersunk Screw (¼" B.S.F. x 1")	1
158		Socket Setscrew (2 B.A. x 5/16") (Cup Point)	1
159	A3008	Layshaft	1
160	A2300	Key	1
161	A2308	32T. Gear	1
162	A2605	Oilite Bush	1
163	A2306	24T. Sliding Gear	1
164	A2307	16T. Gear	1
165	A2494	Bush	1
166	70002	Woodruff Key (No. 404)	3
167	A3013	26T. Gear	1
168	A3014	52T. Gear	1
169	A2269/1	Selector	1
170	A2299	39T. Tumbler Gear	1
171	A2296	Spindle	1
172		Taper Pin (No. 0 x 1⅛")	1
174		Socket Setscrew (2 B.A. x ¼") (Cup Point)	4
175	A2612	Spring	1
179	A3009	Input Shaft Housing	1
180	A2542	Peg End Grubscrew	1
181	11253	Copper Pad	1
182		Socket Setscrew (¼" B.S.F. x ¾") (Half Dog Point)	1
183	A3010	Input Shaft	1
184	11286	Collar	1
185		Socket Setscrew (¼" B.S.F. x ¼") (Cup Point)	1
186	A2327	72T Gear	1
187		Washer (7/16" B.S.F.)	1
188		Hexagon Nut (7/16" B.S.F.)	1
189	65000	Oil Nipple (2 B.A.)	1
†191	A9221	Leadscrew	1
193	A2272	Quadrant Plate	1
194	A2293	Pivot Pin	1
195		Socket Setscrew (¼" B.S.F. x 5/16") (Cup Point)	3
196	A2286	Thrust Block	1
197	A2511	Upper Lever	1
198	A2521	Locating Pin	1
199	11378	Spring	1
200	11278	Grubscrew	1
201	A2602/2	Screwcutting Chart	1
202	A2328/1	Change Gear Quadrant	1
203	A3015	Anchor Pin	1
204		Washer (⅜")	2
205		Hexagon Nut (⅜" B.S.F.)	1
207		Hexagon Lock Nut (5/16" B.S.F.)	2
208	A2326/1	19/57T. Reversible Cluster Gear	1
210	A2325/1	19/57T. Fixed Cluster Gear	1
212	11287	Washer	1

PARTS LISTS FOR QUICK CHANGE GEARBOX (contd.)

Drg. Ref.	Part No.	Description	No. Off/Mc.
213	A1999	Retaining Screw	1
214	A3115	24T. Gear	1
216	A2023	Pad	2
217		Hexagon Head Set Screw (¼" B.S.F. x 1")	1
219		Cap Screw (2 B.A. x 1")	1
220	A3017	Stud	1
221		Washer (¼")	3
222		Hexagon Lock Nut (¼" B.S.F.)	2
223	A2024	Hinge Screw	2
224	A2012	Tension Spring	1
225		Round Head Screw (2 B.A. x 5/16")	3
226	A2527/1	Changewheel Guard – Not now used	1
227	A2528/1	Changewheel Guard (Super 7 and ML7R)	1
228	A7934	Metric Screwcutting Chart	1
229	A3018	Spring Clip	1
232	A2754	Drilling Template	1
233	80004	Knob (Everite Reference No. 780)	1
251		Cap Screw (¼" B.S.F. x 5/8")	3
252		Cap Screw (¼" B.S.F. x ½")	1
254	A2963	Backplate	1
255		Washer (2 B.A.)	1
256		Hexagon Lock Nut (7/16" B.S.F.)	2
258	75/1115/1	Collar	1
259	65089	Oil Nipple (Lumatic HDFV4/45)	2
260	A2977/2	Top Cover	1
261		Rivet (No. 0 x 3/16")	8
262	A2297/1	Plunger Housing	1
264	A2519/1	Knob	1
266	A2965/2	Gearbox	1
267		Cap Screw (M6 x 1 x 16 mm)	2
268	A2330/3	Gear Stud	1
269	A2329/3	Gear Stud	1
270	A2331/1	Link	1
271	A2279/2	Plunger	1
272		Cir-Clip (Anderton 1400-6)	1
†191		For long bed lathe A9224	

METRIC CONVERSION SET

Drg. Ref.	Part No.	Description	No. Off/Mc.
139		Cap Screw (¼" B.S.F. x ¾")	1
234	A2469	Change Gear Quadrant	1
235	A1496	Changewheel Stud	2
236	A1501	Sleeve	2
237	A1500	Bush	2
238	A1498	Washer	2
239		Hexagon Nut (¼" B.S.F.)	2
240	A1499	Changewheel Spacer	2
241	A2604	Distance Piece	2
242	11285/60	60T. Change Gear	2
243	11285/63	63T. Change Gear	1
244	11285/50	50T. Change Gear	2
245	11285/45	45T. Change Gear	2
246	11285/28	28T. Change Gear	1
247	11285/30	30T. Change Gear	1
248	11285/35	35T. Change Gear	1
249	11285/40	40T. Change Gear	1
250	11285/55	55T. Change Gear	1