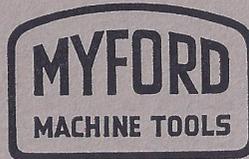


**myford**

**ML7 LATHE**

**NOTES ON  
OPERATION  
INSTALLATION  
AND  
MAINTENANCE  
AND  
PICTORIAL PARTS LIST**

**INCLUDING THE LEVA  
SPIN INDEXER ATTACH**



# ML7 LATHE

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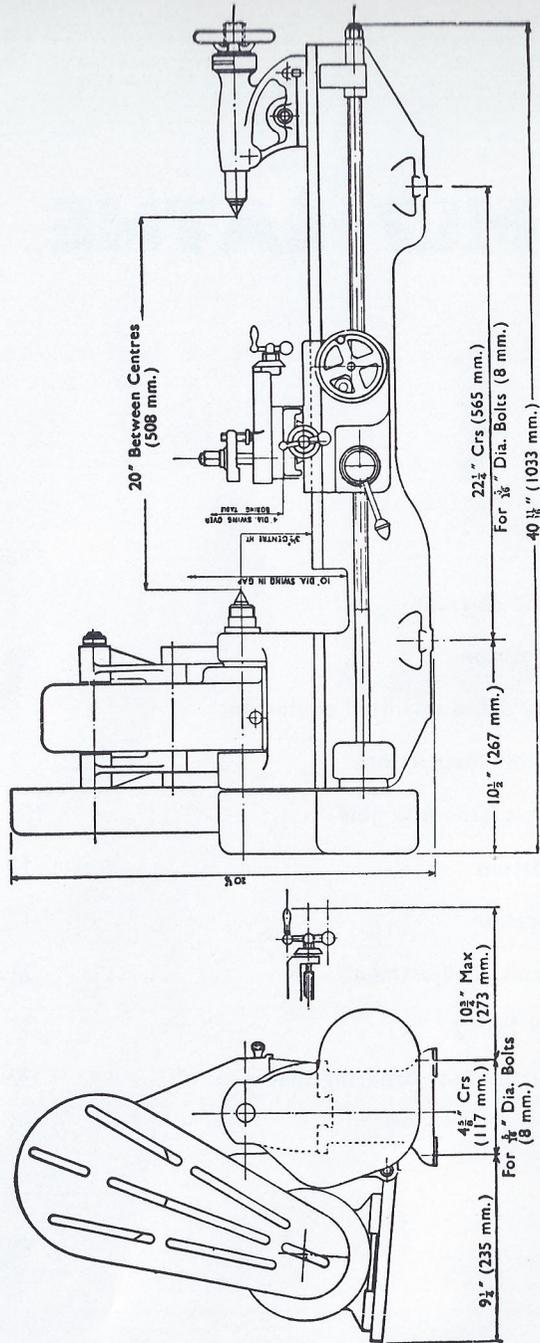


Fig. 1 Showing overall measurements for installation purposes

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.

SERIAL NUMBER

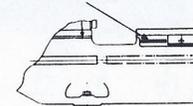


Fig. 2

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.

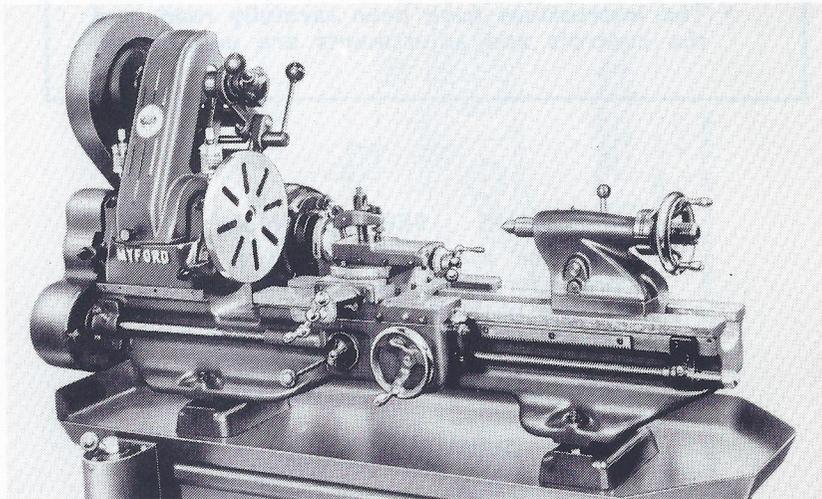
Illustrations not binding in detail

THE MYFORD ML7 LATHE

The MYFORD ML7 Lathe illustrated is one of the most popular examples of the modern small screw cutting Lathe.

Outstanding features include the self-contained motor drive unit, and 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 .. .. .	20 inch	32 inch
Swing over bed .. .. .	10 inch	7 inch
Swing in Gap .. .. .	10 inch	
Swing over boring table .. .. .	4 1/8 inch	
Hole through Spindle .. .. .	19/32 inch	
Spindle Bored .. .. .	No. 2 M.T.	
Spindle Speeds (six) .. .. .	35-640 or 47-870 r.p.m.	
Feeds (Standard finest) .. .. .	.0037 in. per rev.	
Boring Table Travel .. .. .	5 inch	
Top Slide Travel .. .. .	2 1/2 inch	
Leadscrew .. .. .	8 T.P.I. Acme	
Tailstock barrel bored .. .. .	No. 2 M.T.	
Tailstock barrel travel .. .. .	2 3/4 inch	
Overall length .. .. .	3 ft. 5 inch	4 ft. 5 inch
Overall width .. .. .	2 ft. 1 1/2 inch	
Nett weight (including motor) approx. .. .. .	200 lb.	225 lb.
Nett weight on cabinet (incl. motor) approx. .. .. .	320 lb.	375 lb.
Quick-change lathes .. .. .	add =	16 lb.
Tri-Leva speed selector lathes .. .. .	add =	11 lb.

A 1/3 h.p. 3 phase or 1/2 h.p. single phase 1420/1450 r.p.m. full load speed 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.

STANDARD & DISMANTLED EQUIPMENT

Unpacking

Great care is taken in the packing of ML7 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.

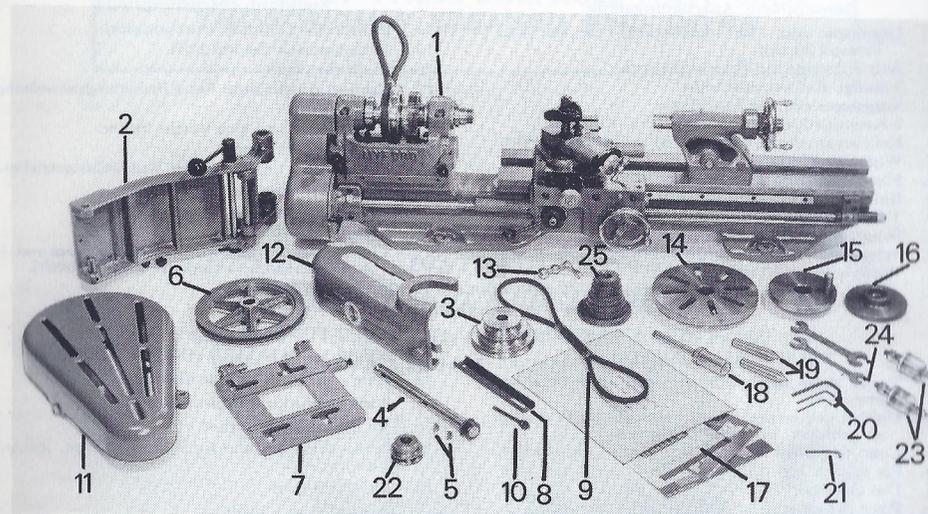


Illustration shows ML7 Lathe with standard equipment dismantled for packing.

L'illustration montre le tour ML7 avec équipement standard démonté en vue de l'emballage.  
Die Abbildung zeigt ML7-Drehbank mit Standard-Ausrüstung, demontiert zum Verpacken.

La fotografia muestra el torno ML7 con el equipo standard preparado para su embalaje.  
A ilustração mostra o Torno ML7 com o equipamento normal desmontado para ser embalado.

DISMANTLED EQUIPMENT

1. Lathe partially dismantled for packing.
2. Unit comprising countershaft arm and swing head assembly.
3. Vee cone pulley for countershaft.
4. Countershaft with locating collar.
5. 2 "Woodruff" keys (No. 606).
6. Countershaft pulley.
7. Motor platform.
8. Tie bar for motor platform.
9. Vee belt for motor drive.
10. Support stud for motor drive belt guard.
11. Motor drive belt guard.
12. Headstock belt guard.
13. Ball handle for cross-slide.

STANDARD EQUIPMENT (LOOSE)

14. 6 3/8" dia. Faceplate.
15. Driver plate with peg.
16. Not now supplied.
17. Descriptive matter, Installation Booklet etc.
18. Oil Gun.
19. Soft and Hard Centres.
20. 3 Hexagon keys.
21. Key for Back-gear lock.
22. Motor pulley.
23. 2 Sight feed lubricators.
24. 2 Spanners.
25. 8 Changewheels. (To complete standard set of 14—6 are mounted on the machine.)

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

## PIECES DEMONTEES—

1. Tour partiellement démonté en vue de l'emballage
2. Elément comprenant le bras de renvoi et basculeur-tendeur
3. Poulie à gradins du renvoi
4. Arbre de renvoi avec collier de blocage
5. 2 clavettes Woodruff (No. 90)
6. Poulie de renvoi (178 m/m ø)
7. Semelle pour moteur
8. Tirant de la semelle du moteur
9. Courroie trapézoïdale pour moteur
10. Goujon-support du capot de protection de a courroie moteur
11. Capot de protection de la courroie moteur
12. Capot de protection de la poulie.
13. Manivelle de commande du chariot transversal

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

## Demontierte Ausrüstungsteile

1. Drehbank zum Teil demontiert, wie sie zum Versand kommt.
2. Antriebswippe mit Riemenspanner.
3. 3-stufige Keilriemenscheibe.
4. Vorgelegewelle mit Anschlag.
5. 2 Keilnutenkeile "Woodruff" (No. 90).
6. Keilriemenscheibe (178 mm ø) zu Vorgelegewelle.
7. Wippe zu Elektromotor.
8. Fixationsarm zu Motor-Wippe.
9. Keilriemen zu Motor-Vorgelege.
10. Tragbolzen zu Motor-Schutzhaube.
11. Schutzhaube zu Motor-Riemen.
12. Schutzhaube zu Spindelstockantrieb.
13. Winkelgriff zu Kreuzschlitten.

Diese Zahlen 1 - 25 dienen nur zur Kontrolle beim Auspacken.  
Bitte beim Bestellen keinen Gebrauch dieser Nummern machen.

## EQUIPO DESMONTADO

1. Torno desmontado parcialmente, listo para ser embalado.
2. Unidad que comprende el brazo del eje auxiliar y el conjunto principal oscilatorio.
3. Cono de poleas trapezoidales para el eje auxiliar.
4. Eje auxiliar con collar.
5. Dos chavetas "Woodruff" (No. 90).
6. Polsa del eje auxiliar (178 mm de diámetro).
7. Soporte del motor.
8. Tirante de sujeción del soporte del motor.
9. Correa trapezoidal.
10. Espárrago soporte para la protección de la correa del motor.
11. Protección de la correa del motor.
12. Protección de la correa del cabezal.
13. Manileva para el movimiento transversal del portaherramientas.

Para Comprobacion Solamente.  
No Utilizar Estos Numeros Para Pedir Piezas.

## EQUIPAMENTO DESMONTADO

1. Torno parcialmente desmontado para embalagem.
2. Unidade compreendendo o braço de contraveio e conjunto de cabeçote giratório.
3. Polie de cone em V para o contraveio.
4. Contraveio com anel para colocação.
5. 2 Chaves "Woodruff" (No. 90).
6. Roldans de contraveio (178 m/m de diámetro).
7. Base do motor.
8. Barra de fixação da base do motor.
9. Correia trapezoidal para accionamento do motor.
10. Perno de suporte para resguardo de correia de accionamento do motor.
11. Resguardo da correia de accionamento do motor.
12. Resguardo da correia do cabeçote.
13. Manipulo para a espera transversal.

Apenas Para Identificação Não Usar Estes Números  
Para Encomendar.

## EQUIPEMENT STANDARD (libre)

14. Plateau à rainures (170 mm)
15. Plateau pousse-toc
16. Pas fourni
17. Littérature, notice de montage etc. . .
18. Pompe à huile
19. pointes douce et dure
20. 3 clés B.T.R.
21. clé pour déblocage du harnais
22. Poulie moteur
23. 2 lubrificateurs à valve
24. 2 clés plates
25. 8 pignons (complétant le jeu standard de 14 - six étant en place sur la machine).

## Standard-Ausrüstungsteile

14. Planscheibe (170 mm Durchmesser).
15. Mitnehmerscheibe mit Stift.
16. Nicht verschafft.
17. Katalog, Aufstellungs - und Bedienungsanweisung.
18. Oelspritze.
19. Je eine harte und eine weiche Spitze.
20. Drei Inbus-Schlüssel.
21. Schlüssel zur Schaltung des Reduktionsgetriebes.
22. Motor-Keilriemenscheibe.
23. 2 Sicht-Tropfoeler.
24. 2 Doppelgabelschlüssel.
25. 8 Wechslräder (zum ganzen Standardsatz von 14 Stück gehörend, 6 montiert auf Drehbank).

## EQUIPO STANDARD (INDEPENDIENTE)

14. Plato plano (170 mm de diámetro).
15. Plato para utilizar contrapunto.
16. No ahora suministrado.
17. Información de montaje y descripciones, instrucciones, etc.
18. Pistola de aceite.
19. Puntos; duro y blando.
20. 3 llaves exagonales.
21. Llave para el freno del mecanismo posterior.
22. Polea del motor.
23. 2 Lubrificadores visuales.
24. 2 llaves fijas.
25. 8 ruedas dentadas (para completar el juego "standard" de 14; seis están montadas en la máquina).

## EQUIPAMENTO NORMAL (Peças soltas)

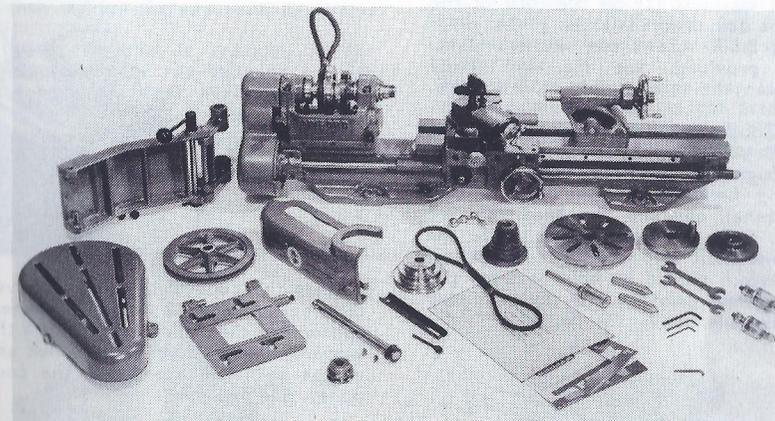
14. Prato liso de 170 m/m de diámetro.
15. Prato de transmissão com cavilha.
16. No fornecido.
17. Matéria descritiva, livrete de instalação, etc.
18. Pistola para óleo.
19. Pontos macios e rijos.
20. 3 Chaves hexagonais.
21. Chave de fixação do contaveio de mudança.
22. Polie do motor.
23. 2 lubrificadores de gota visível.
24. 2 Chaves de boca.
25. 8 rodas de muda (para completar jogo normal de 14—16 montadas no torno).

## 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  
FOR LATHES FITTED WITH CLUTCH SEE ALSO PAGE 10a  
FOR TRI-LEVA LATHES TURN TO PAGE 10a**



ML7 Lathes have the motorising equipment and cross slide ball handle dismantled for safe and economical packing purposes, these should be assembled on the machine by the method shown in this publication.

The number references used throughout these assembly instructions are those shown in Figures 3 and 10.

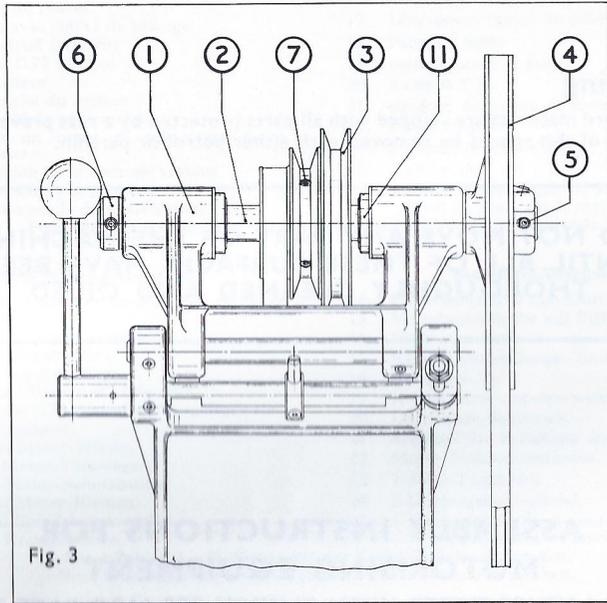


Fig. 3

a Mount the countershaft arm/swing head assembly (1) on the back of the Lathe bed, using the three ¼" dia. x 1½" long B.S.F. screws and washers which are provided. See Fig. 4. Lightly tighten the screws only at this stage.

b Check that the rubber bushes (11) are in position, slide the countershaft (2) through the left-hand bearing of the swing head, (facing the rear of the machine), and slip the headstock vee belt over the countershaft, slide the countershaft into the vee cone pulley, (3) which should be held between the swing head bearings with the small step on the left. See Fig. 5.

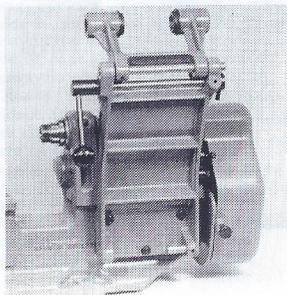


Fig. 4

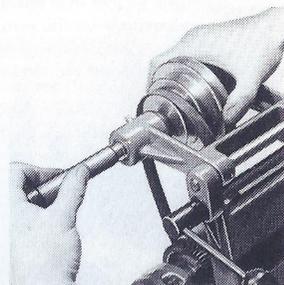


Fig. 5

c Pass the countershaft into the vee cone pulley until the woodruff key seat approaches the pulley bore. Insert the woodruff key into the countershaft and engage with the keyway of the cone pulley. See Fig. 6.

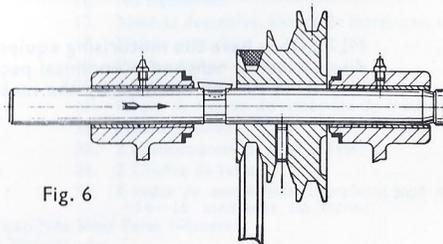


Fig. 6

d Slide the countershaft right through the remaining swing head bearing; place the fibre washer on the shaft and insert the second woodruff key at the extreme end of the countershaft (right hand end). Mount the vee pulley (4), and secure with the two socket grub screws (5). Adjust the collar (6) to allow approximately .005" end float. See Fig. 7.

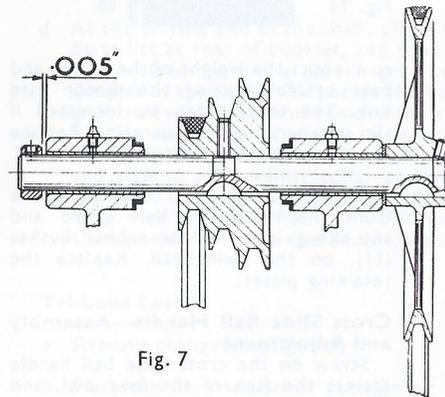


Fig. 7

e Position the countershaft cone pulley opposite the headstock cone pulley and lightly tighten the two securing screws (7).

(Note: A relief is provided in the countershaft for the securing screws). To ensure correct alignment of the countershaft and headstock spindle, place a straight edge across the face of

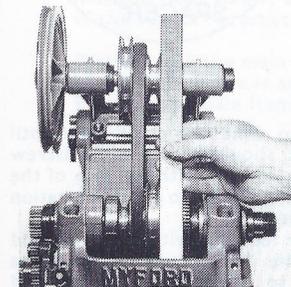


Fig. 8

the headstock cone pulley and adjust the position of the countershaft arm assembly, so that the headstock and the countershaft cone pulleys are parallel. See Fig. 8. Finally tighten the three countershaft arm fixing screws.

f Line up the countershaft cone pulley with the headstock cone pulley using the straight edge. Finally tighten the two securing screws (7).

g Pull the belt tensioning lever forward against the stop (i.e. with the lever and knob roughly vertical) so that the cam shaft (8) is in the full lift position. Adjust the tensioning screws (9) until the slack of the belt allows approx. ½" total movement when lightly oscillated by the thumb and forefinger. This will provide an initial tension setting, which can be increased if slip is experienced when the machine is operated. See Figs. 9 and 10.

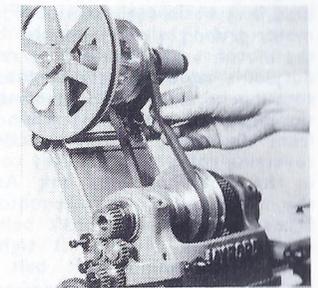


Fig. 9

h Remove the changewheel guard, assemble the motor base as shown in Fig. 11 (set as far to the right as possible), and secure by tightening the socket grub screw in the right hand lug of the motor base.

Note: The socket grub screw in the countershaft arm locates the assembly endwise, and should not be so tight as to prevent free swivelling of the motor base.

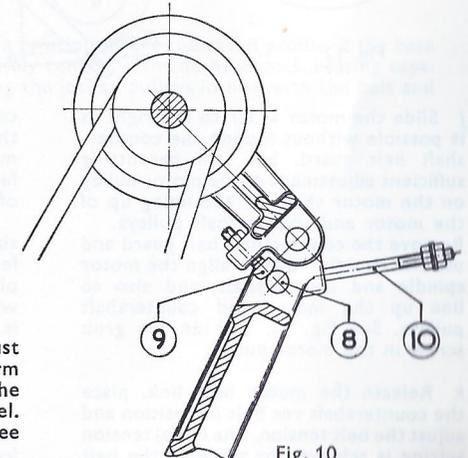


Fig. 10

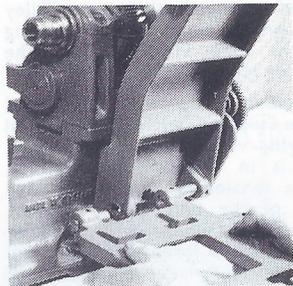


Fig. 11

i Attach the motor base link (with flanges innermost), and secure the motor base in a horizontal position. Place the motor and lightly tighten the bolts. If the motor is not required for reversing duty, it is recommended that the correct rotation be set before mounting. Rotation should be clockwise when viewed from the pulley end. Instructions for reversing rotation are usually contained in the motor terminal box. Assemble the motor pulley on to the motor shaft. Screw in the countershaft belt guard support stud (10), until tight, and attach the countershaft belt guard. See Fig. 12.

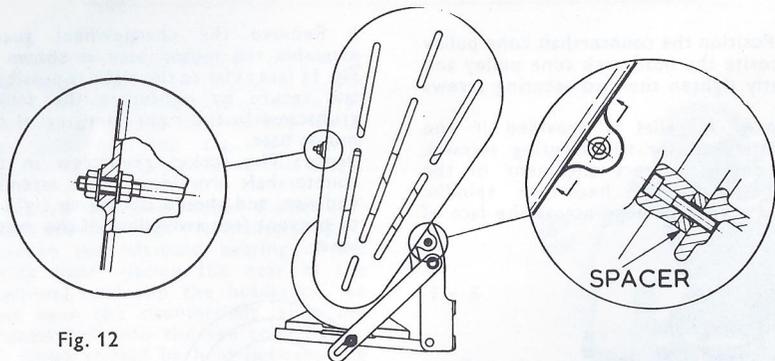


Fig. 12

j Slide the motor as far to the right as is possible without fouling the countershaft belt guard, but still permitting sufficient adjustment of the motor pulley on the motor shaft for the lining up of the motor and countershaft pulleys. Remove the countershaft belt guard and use the straight edge to align the motor spindle and countershaft, and also to line up the motor and countershaft pulleys. See Fig. 13. Tighten the grub screw in the motor pulley.

k Release the motor base link, place the countershaft vee belt in position and adjust the belt tension. The initial tension setting is achieved by allowing the belt

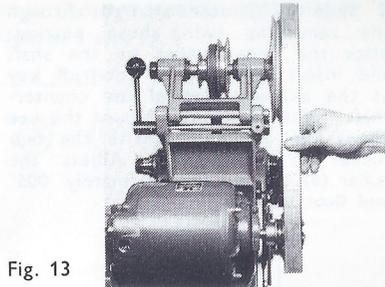


Fig. 13

to support the weight of the motor and base before securing the motor base link. The tension can be increased if slip is experienced in operation. Replace the countershaft belt guard.

l Dismantle the two retaining plates from the headstock belt guard and slip the guard over the rubber bushes (11), on the swinghead. Replace the retaining plates.

#### Cross Slide Ball Handle—Assembly and Adjustment

Screw on the cross slide ball handle against the face of the feed dial, and

continue to wind the cross slide until the thrust shoulder of the feedscrew makes firm contact with the face of the feednut in the saddle, to prevent rotation of the feedscrew.

Hold the feed dial with a spanner and slack-off the ball handle. Adjust the feed dial to eliminate excessive end play in the feedscrew bearing, and hold with the spanner whilst the ball handle is screwed forward to lock against the feed dial. An extremely tight adjustment is not necessary since end play does not affect the accuracy of the feed.

Wind the handle in both directions to ensure that the feedscrew rotates freely.

## ASSEMBLY INSTRUCTIONS

### Lathes, fitted with a clutch

Proceed as 'a' and 'b' on page 8 noting that in this instance the countershaft is complete with actuating shaft, collar, lever assembly and lever pivot bracket.

- c Pass the countershaft through the vee cone pulley, ensuring that the flats on the shaft are lineable with the grub screws in the cone pulley, and through the second bearing. Tighten the screws in the cone pulley just sufficiently to prevent the pulley from turning on the shaft but without securing the pulley.
- d At the driving end of the shaft, place in position the thrust washer P.22, see parts list at rear of booklet, and countershaft pulley assembly including the clutch assembly, lining up the grub screws in the backplate P.14 with the dimples in the shaft P.75. Locate the backplate on the shaft by tightening one grub screw. Release and remove the sleeve nut P.7 and withdraw lever P.8 keeping adjusting collar P.2 attached to it. Tighten securely both grub screws in backplate P.14. Replace washer P.2, lever P.8 and sleeve nut P.7 and tighten nut. Adjust collar at lever end of countershaft to give .005" end float to shaft, see Fig. 7 page 9. Position lever pivot bracket on swing head with outer end flush with boss on swing head and tighten grub screws. Continue as 'e' etc. to the end on pages 9 and 10.

### Tri-Leva Lathes

- a Remove changewheel guard.
- b Place the fibre washer in position on the countershaft, insert the woodruff key into the keyway and mount the vee pulley on the shaft, and secure it by means of the two grub screws.
- c Check shaft for end float. See Fig. 7 page 9. Adjust the collar if necessary.
- d Fit the motor base, etc. as described at 'h', 'i', 'j', and 'k', pages 9 and 10, including fitment of countershaft belt guard and replace the changewheel guard.
- e After removing the hexagon nut and washer S.6 and S.38 (see parts list at rear of booklet) also hexagon head screw and spherical washers S.40 and S.41, place the main frame unit over the swing head and lower it on to the front of the lower trap. Replace the hexagon nut also the spherical washers and hexagon head screw, ensuring that there is a spherical washer on each side of the support bracket S.39.

Partially lock the main frame in a position where the radial profile at the base of the main frame is approximately central with the headstock bearing caps. Position the main frame to bring the jockey pulleys in line with the belt and lock.

## INSTALLATION

### 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 stands make ideal supports 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.

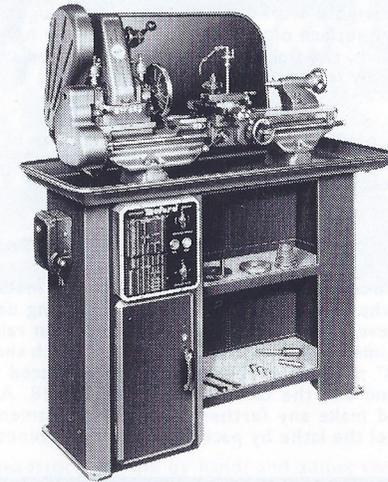


Fig. 14. ML7 Lathe mounted on Industrial Cabinet Stand with built-in coolant service and splash guard.



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.

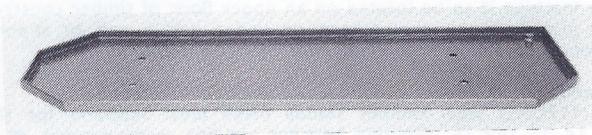


Fig. 17 Drip Tray

#### 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 topside 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 mounting 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 .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.

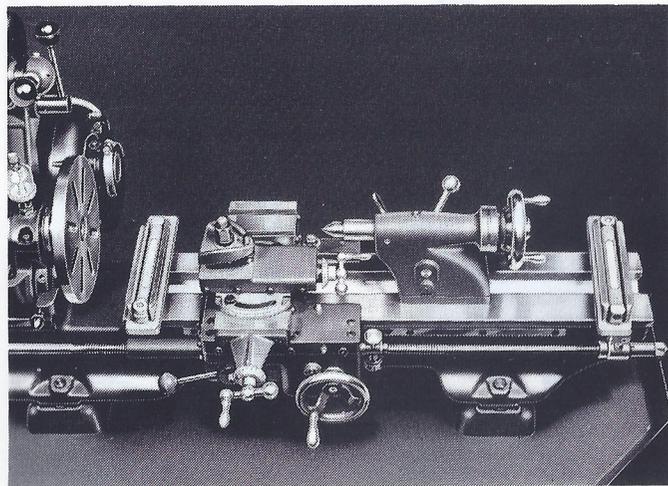


Fig. 18

Illustration of bed with precision levels at two points.

#### 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.

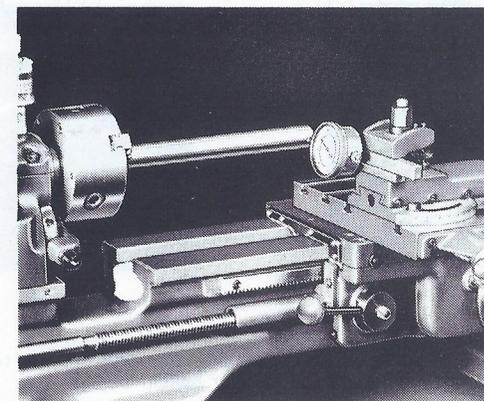


Fig. 19

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 when holding down bolts are tightened 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.

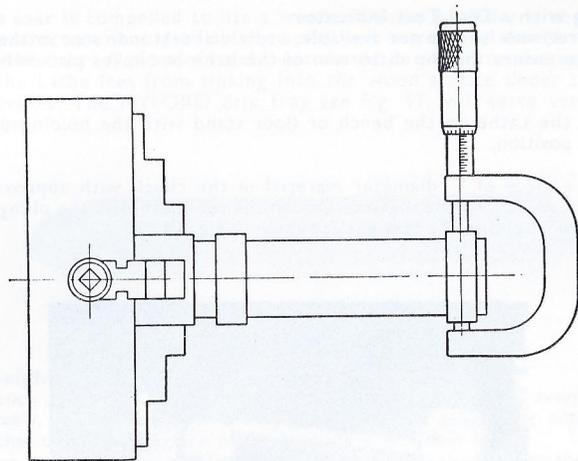


Fig. 20

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**

ML.7 Lathes are designed for use with 1,450 r.p.m., electric motors of ⅓ H.P. or ½ H.P.

**NOTE** Single phase motors are not suitable for applications where very frequent stopping and starting is involved. Any ML.7 machine which is required for use under such conditions and with single phase electrical supply, should be fitted with a No. 1466 MYFORD Countershaft Clutch Unit Fig. 21, which will greatly reduce the burden on the motor.

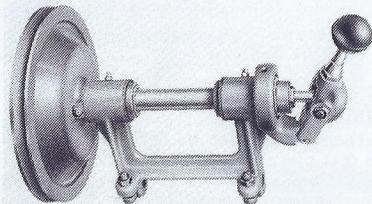


Fig. 21. Countershaft Clutch Unit.

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 except No. 20/038 are fitted with a switch which is already connected to a terminal block at the back of the stand. See Figs. 22 & 23. The Lathe motor and mains supply should be connected to the appropriate terminals as indicated in Fig. 23. **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 stand but direct into, the push button starter (for single phase connect to L1 & L3).

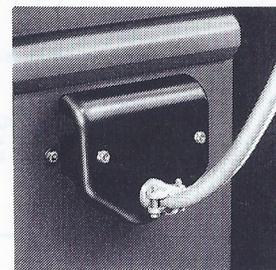


Fig. 22

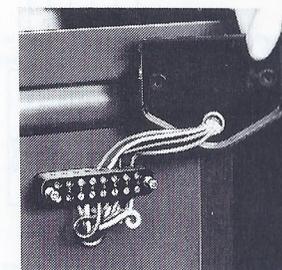


Fig. 23

Close-up of terminal Block with and without cover.

The DRUM TYPE reversing switch, See Figs. 24 & 24A 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. 24A. This bracket can be fitted to Standard Change Gear Machines only.



Fig. 24  
Drum Type Switch

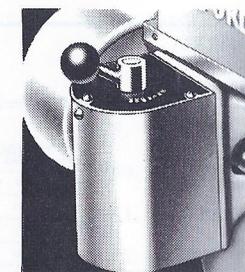


Fig. 24A  
Drum Type Switch  
Mounted on Switch  
Bracket

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.

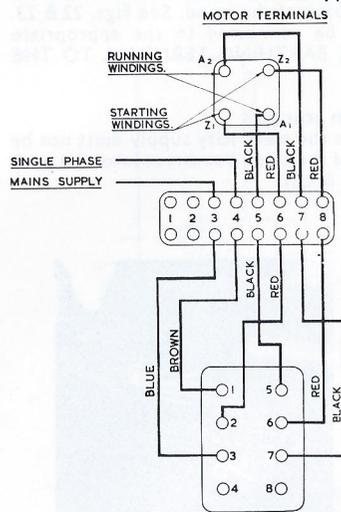


Fig. 25. Single Phase

**N.B.** When a push button starter, with or without isolator, is fitted, the supply should be connected to it (or to the isolator), not to the terminal block.

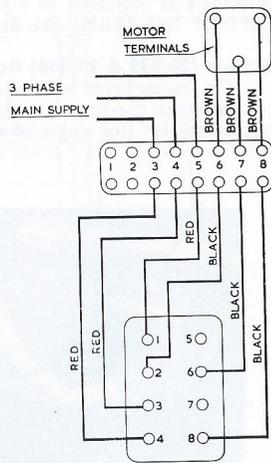


Fig. 26. Three Phase

**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	AZ	T
AEI	A1	T2	T3	A2
ENGLISH ELECTRIC	1	2	3	4
BROOK	Z1	A1	A2	Z2

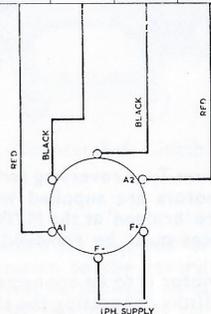


Fig. 27

The table of comparative terminal markings is also applicable when using the drum type reversing switch.

**LUBRICATION**

After installing the Lathe, refer to the lubrication charts on Pages 19 and 20 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 during the first few hours of running.

**Headstock Bearings**

The ML.7 headstock bearings are lubricated from sight feed lubricators, Fig. 28. Feed is controlled by a needle valve which is adjusted by the thumb screw nut at the top of the lubricator, the oil drip being visible through a sight glass below the valve.

Normally the drip should be set as slow as possible but if prolonged high speed is undertaken the rate may be increased.

The lubricator is filled by inserting an oil can spout into one of the filler caps on the oil reservoir.

**SIGHT FEED LUBRICATOR**

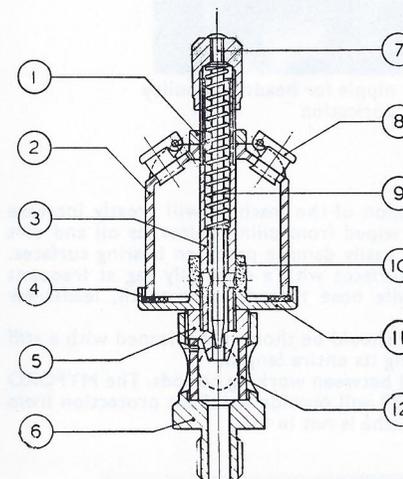


Fig. 28

1. LOCKING NUT
2. RESERVOIR
3. STAND PIPE
4. CORK SEALING WASHER
5. CHAMBER BUSH
6. SIGHT CHAMBER
7. NEEDLE VALVE ASSEMBLY
8. FILLER CAP
9. SPRING
10. OIL FILTER
11. RESERVOIR BASE
12. SIGHT GLASS

**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. 29.

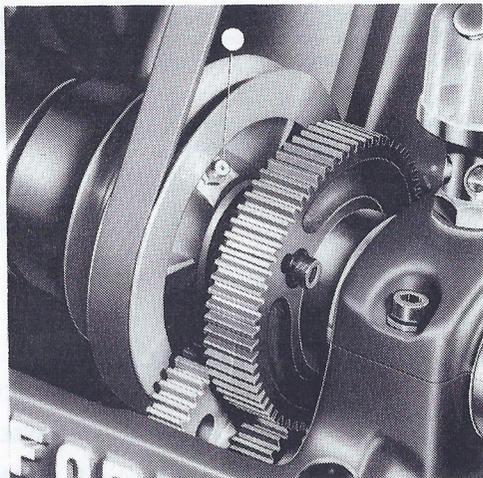


Fig. 29. Showing the oil nipple for headstock pulley bearing lubrication

**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. 30 will provide excellent protection from moisture and abrasive dust when the Lathe is not in use.

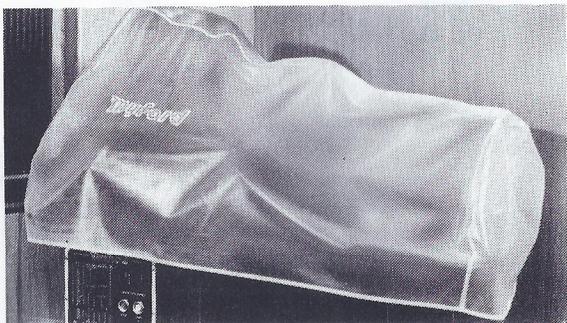
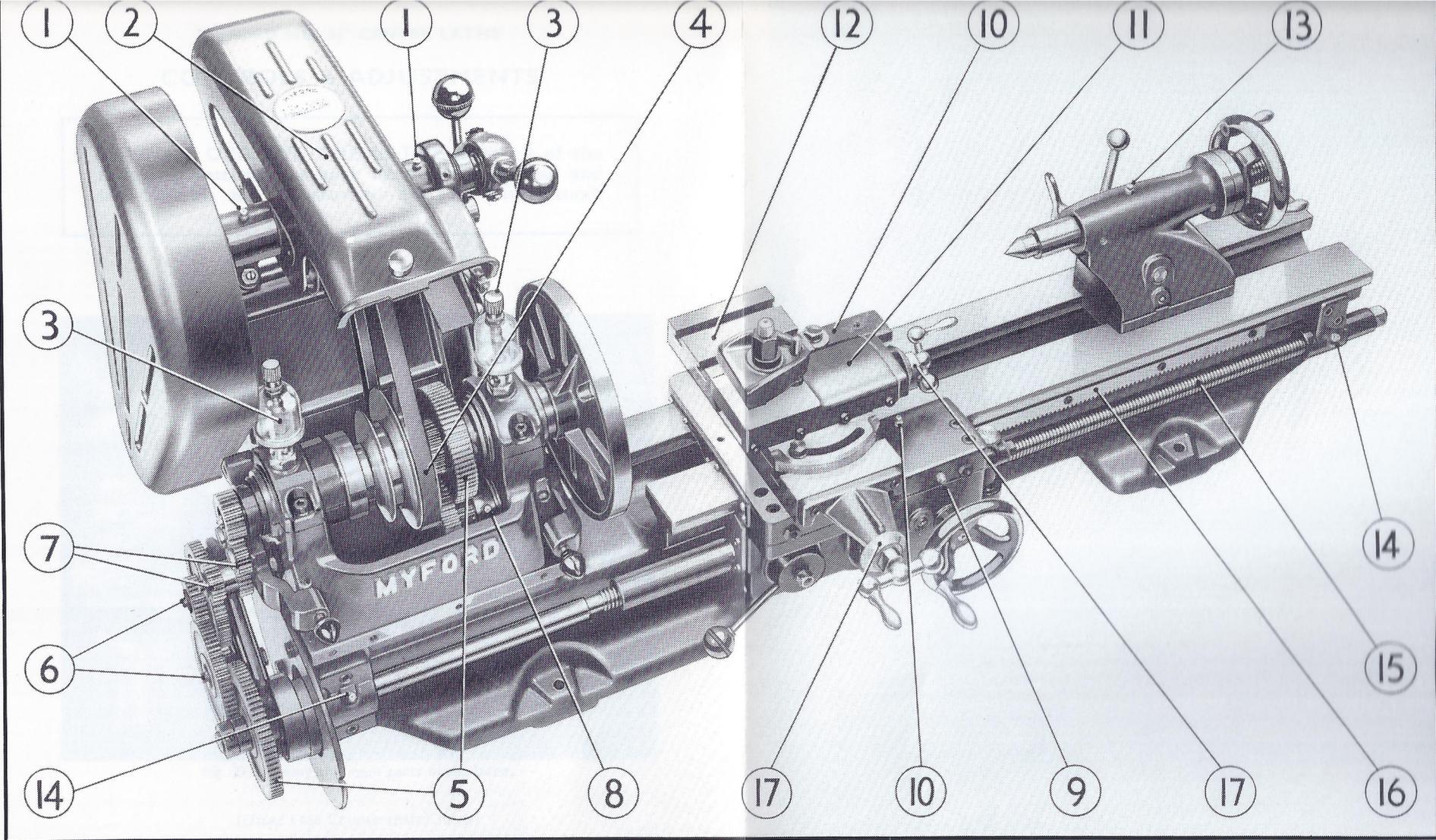


Fig. 30. Lathe cover.



**LUBRICATION CHART. Use Esso Nuto H32 except where otherwise stated (Under I.S.O. specification 3448/1975(E) Nuto H32 replaces Nuto H44)**

**AT REGULAR INTERVALS**

1. **Countershaft.** Use the oil gun on both nipples.
3. **Headstock Bearings.** Check the oil level of Sight Feed Lubricators, and replenish when necessary.
4. **Headstock Pulley.** Lubricate with oil gun frequently whenever the reduction gear is used via the oil nipple at the large end of the pulley.
- \*5. **Backgears and Change gear teeth.** A small amount of oil (viscosity SAE 30) will effectively lubricate the gear teeth.
6. **Changewheel Studs.** Oil frequently.
- \*7. **Tumbler Gears.** These fast running components should be frequently lubricated whenever the gears are being used.

8. **Backgear Spindle.** Use the oil gun frequently, whenever the reduction gear is used.
9. **Apron Reservoir.** Use the oil gun. This supply is distributed to the handwheel and rack pinion shafts and also feeds the reduction gear.
10. **Saddle.** Use the oil gun on both nipples; one over the front shears, one at the rear.
11. **Topslide Ways.** Clean and apply an oil of SAE 30 viscosity.
12. **Cross-slide Ways.** Clean and apply an oil of SAE 30 viscosity.
13. **Tailstock Barrel.** Use the oil gun on nipple shown.
2. **Swing Head Pin and Eccentric.** Apply oil of SAE 30 viscosity.

**OCCASIONALLY**

14. **Leadscrew Brackets.** Use the oil gun on both nipples.
- \*15. **Leadscrew.** Clean with a stiff brush and apply oil SAE 30 viscosity.
- \*16. **Rack.** Apply oil of SAE 30 viscosity.
- \*17. **Cross-slide and Topslide Feedscrews.** Oil occasionally from underneath, using oil of SAE 30 viscosity.

**NOTE.** We supply and recommend Esso Nuto H32 Oil for general lubrication. Where SAE 30 viscosity oil is specified, any good motor oil of this number will be satisfactory. For starred items Nos. 5, 7, 15, 16, 17, Rocol MTS 1000 grease should be used in those territories where it is available.

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.

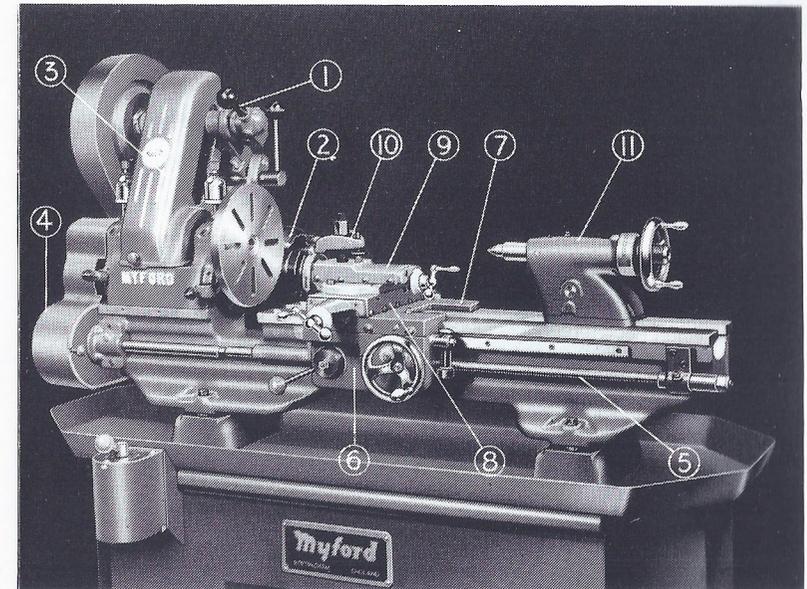


Fig. 31 Showing the main parts of the lathe.

(Fitted 1466 Countershaft Clutch)

- |                                |                 |
|--------------------------------|-----------------|
| (1) COUNTERSHAFT               | (7) SADDLE      |
| (2) ELECTRIC MOTOR             | (8) CROSS SLIDE |
| (3) HEADSTOCK                  | (9) TOPSLIDE    |
| (4) LEADSCREW DRIVE GEAR TRAIN | (10) TOOLPOST   |
| (5) LEADSCREW                  | (11) TAILSTOCK  |
| (6) APRON                      |                 |

**Headstock Spindle Drive**

A compact motorising unit which makes the ML.7 completely self contained, is attached to the rear of the 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 countershaft and headstock spindle give a range of three speeds which is extended to six by the provision of a 6-1 reduction gear on the headstock spindle. Fig. 32.

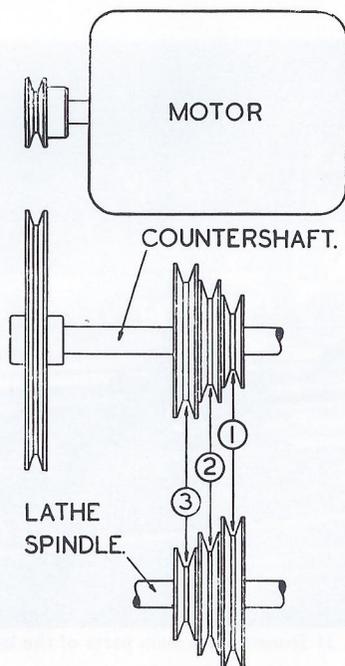


Fig. 32

HEADSTOCK SPINDLE SPEEDS (1420/1450 R.P.M. FULL LOAD SPEED MOTOR) SPINDLE SPEEDS WITH 1750 R.P.M. (60 CYCLE A.C.) MOTOR IN BRACKETS				
Headstock Belt Position	1⅞" Dia. Motor Pulley (Standard)		2½" Dia. Motor Pulley	
	Ungear'd	Geared	Ungear'd	Geared
1	200 (246)	35 (43)	273 (338)	47 (58)
2	357 (438)	62 (76)	487 (600)	84 (103)
3	640 (785)	110 (135)	870 (1070)	152 (187)

**Speed Changing**

Access to the headstock belt for speed changing is attained by sliding up the front guard, as shown in Fig. 33 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, OR WITHOUT OPERATING THE BELT TENSIONING LEVER**

The coupling of the pulley to the spindle for direct or ungeared driving is achieved by a sliding key which engages with the headstock pulley sleeve gear. The sliding key is locked in position by means of a cap head screw, which is released to withdraw the key whenever the geared speeds are required.

To operate the reduction gear, withdraw the sliding key and shift the back gear operating lever to the upper position.

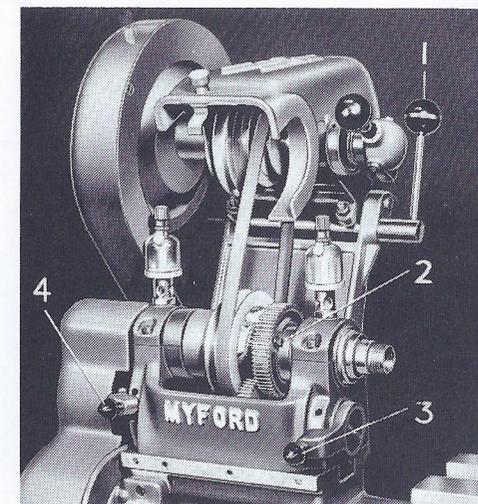


Fig. 33. Location of the Headstock Controls.

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

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

**Headstock Bearings**

The headstock is fitted with Glacier T.1 Alloy anti-friction bearings. Top and bottom bearing halves are fitted accurately in the bearing housing and form a solid support against spindle journal loads. Every care is taken to ensure correct bearing adjustment before the machine leaves the Works, and bearings should not be interfered with unless necessary. For the purpose of bearing adjustment, a pad comprised of brass shims is fitted between the two housing faces. This shim pad has a solid appearance but is made of .002" laminations, and by inserting a penknife blade it is an easy matter to peel off the desired thickness to allow the bearings closer contact with the spindle. After removing a .002" shim it will be necessary to scrape or file some proportional amount from the bearing half contact faces, giving a good seating to bearing halves and housing cap; in effect a solid condition with running clearance only between spindle and bearing. Whenever bearings need adjustment use marking blue for contact check, carefully scraping any high spots with a half round bearing scraper.

Spindle end thrust adjustment is made by the screwed collar at the end of the Spindle, and care should be taken to ensure the elimination of end float without undue friction by over tightening.

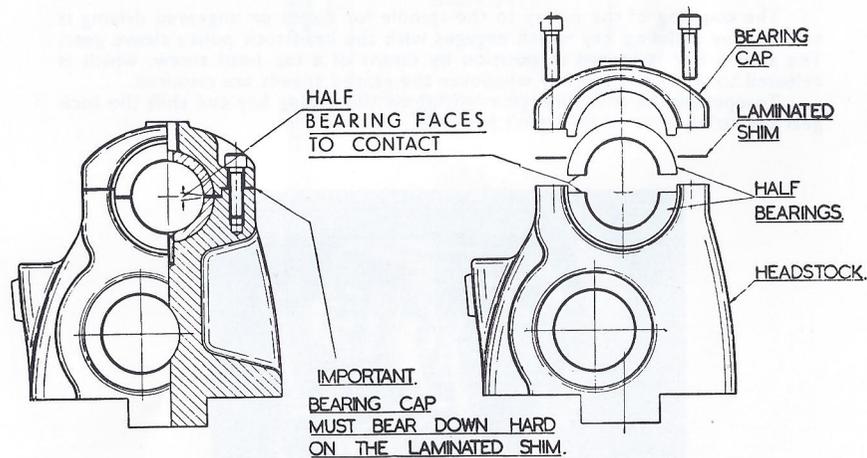


Fig. 34—Showing Method of Adjusting ML7 Lathe Headstock Bearings.

**Replacement of Headstock Vee Belt**

The vee rope can readily be replaced when necessary by removing the bearing caps and lifting out the spindle assembly as a complete unit; care should be taken to ensure that the shims are replaced in the same positions and that the caps are locked up tight after replacement.

**Replacement of Headstock Vee-Belt—Tri-Leva Lathes**

- a Remove the main frame unit; see assembly instructions, 'e', page 10a.
- b Remove cheesehead screw and washer S.60 and S.61 which fasten link S.59 (see parts list at end of booklet) to upper belt trap. Unscrew caphead screws S.10 which hold clamps S.9 and S.11 to upper belt trap S.8. The clamps and belt trap may now be removed.
- c Dismantle headstock spindle and countershaft as for basic machine.

**N.B.** When replacing upper belt trap do not over tighten screws S.10 which secure the clamps. The upper trap should be free to move by normal hand pressure. The slotted link S.59 is left free until, with the screws tightened as above, the trap has been positioned to give approximately 1/8 inch clearance between the inner face of the trap and the outer face of the belt. When the trap has been positioned replace screw and washer S.9 and S.11 and tighten.

**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.

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

**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 feeds.

To set up the lathe for threading or feeding, refer to the change wheel chart inside the change wheel guard Figs. 37 and 38.

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 reverse stud.

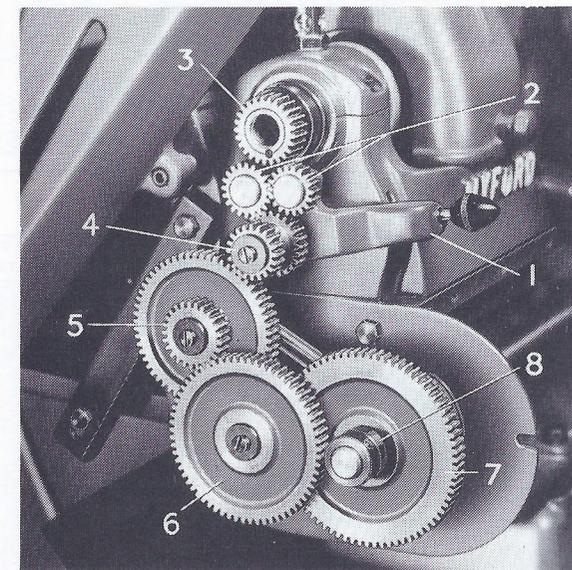


Fig. 35. Showing Leadscrew Drive.

- |                           |                    |
|---------------------------|--------------------|
| (1) TUMBLER REVERSE LEVER | (5) 1st STUD GEARS |
| (2) TUMBLER REVERSE GEARS | (6) 2nd STUD GEARS |
| (3) 25T SPINDLE GEAR      | (7) LEADSCREW GEAR |
| (4) TUMBLER CLUSTER GEAR  | (8) SPACER         |

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 6th 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. 36, which will indicate the arrangement of gears and spacers for the pitch in question, see also Fig. 35 which shows set-up as in Diagram 3, Fig. 36.

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.

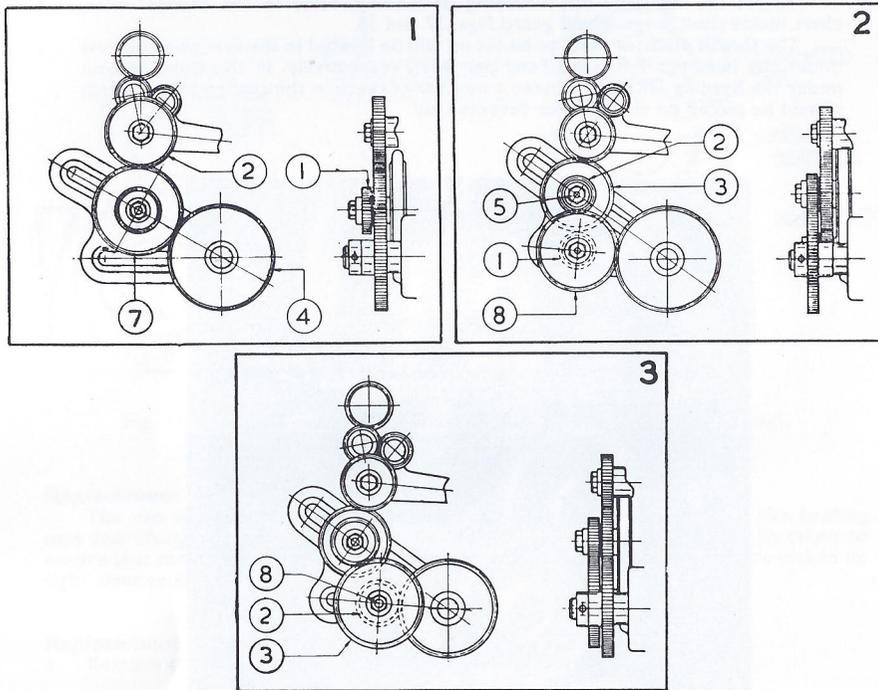


Fig. 36

INCH PITCHES

T P I.	FEED PER REV	1ST STUD		2ND STUD		LEAD SCREW	SET - UP
		DRIVER	DRIVEN	DRIVER	DRIVEN		
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	3
72	.0139'	25	50 30	45 20	60	3	3
80	.0125'	25	50 35	70 30	75	3	3
88	.0114'	30	40 25	55 20	75	3	3
92	.0109'	20	46* 30	50 20	60	3	3
96	.0104'	30	40 20	60 25	75	3	3
104	.0096'	20	50 30	60 25	65	3	3
	.0087'	20	55 30	60 25	65	3	3
112	.0089'	25	50 30	60 20	70	3	3
120	.0083'	20	50 30	60 25	75	3	3
	.0058'	20	55 25	60 20	65	3	3
	.0043'	20	60 25	65 20	75	3	3
	.0037'	20	65 25	70 20	75	3	3
	.0018'	12*	65 20	70 20	75	3	3

LEADSCREW 8 THREADS PER INCH

● Not a standard Gear. Available as an extra.

\* 12/25 tooth Tumbler Cluster Gear (1974) available as an extra.

Fig. 37

METRIC PITCHES

FEED PER REV MILLIMETERS	DRIVER	1ST STUD		2ND STUD		LEAD SCREW	SET - UP
		DRIVER	DRIVEN	DRIVER	DRIVEN		
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

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. 38

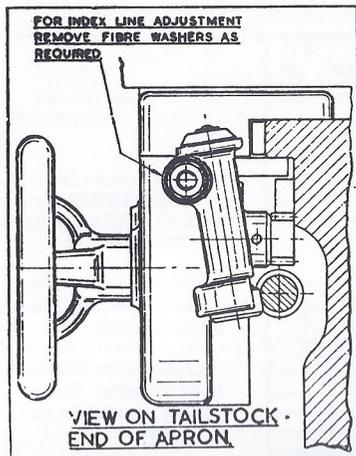


Fig. 39—Thread Dial Indicator Mounting for ML7 Lathe

**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. 39. 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.

**Carriage Controls**

Fig. 40, 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 toolpost in and out.

Both cross slide and top slide feedscrew dial graduations represent slide movement in increments of .001".

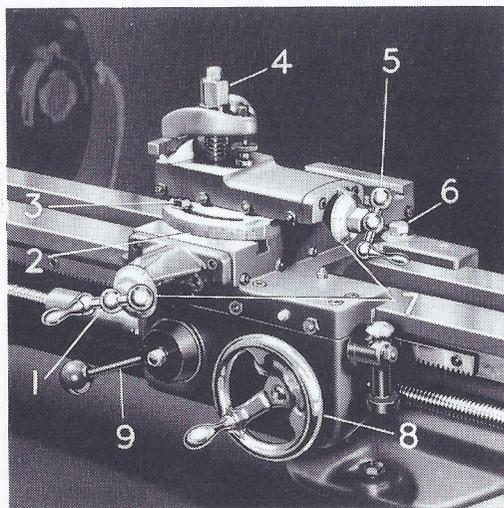


Fig. 40. Showing the carriage controls.

- |                             |                           |
|-----------------------------|---------------------------|
| (1) CROSS SLIDE BALL HANDLE | (5) TOP SLIDE BALL HANDLE |
| (2) SWIVEL GRADUATIONS      | (6) SADDLE CLAMP          |
| (3) LOCKING BOLT            | (7) MICROMETER DIALS      |
| (4) TOOL POST               | (8) APRON HANDWHEEL       |
| (9) HALF NUT LEVER          |                           |

A clamp screw 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.

**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-nuts 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 similar to those used for the headstock bearings. The same procedure is adopted when adjustment becomes necessary.

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.

**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 screws, so that they contact the strip without increasing the friction and tighten their locknuts.

**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 1¼" cap screw (parts list, L14) must be so adjusted that the leadscrew nut will not close sufficiently to cause it to bind on the leadscrew.

**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.

The barrel is locked in place by means of the thumb lever, also at rear.

The Tailstock can be set-over 7/16" for taper turning, by first loosening the bed clamp and then adjusting the screws 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**

Release gib securing screws and retighten until just nipped.

Adjust thrust screws 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".

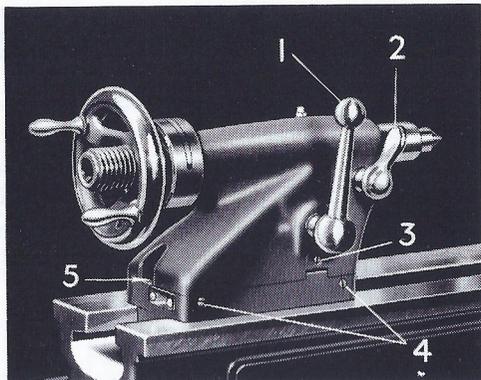


Fig. 41. Rear view of the tailstock.

- |                    |                         |
|--------------------|-------------------------|
| (1) CLAMP LEVER    | (4) GIB THRUST SCREWS   |
| (2) THUMB LEVER    | (5) GIB SECURING SCREWS |
| (3) SET OVER SCREW |                         |

**Tri-Leva Speed Selector**

Belt tension is covered in two ways. All three belts may be adjusted simultaneously by means of the adjusting screws on the cam shaft (as for the basic machine). These should be adjusted to bring the swing head in a position approximately in the centre of the main frame clearance aperture. For individual belt adjustment remove the four screws securing the front plate and detach the plate; see left hand illustration below. The adjusting screws (1) are slotted so that they remain locked in the set position.

To adjust, push the pulley supporting arm (2) inwards to clear the adjusting screw (1), to enable the latter to be turned. The belts should be tensioned to such a degree that there is no feeling of force when the lever is depressed into the operating position.

Trip Adjustment. If an engaged lever is not tripped when a further lever is depressed, the trip plate setting may be varied by raising or lowering the pivot arms (1); see right hand illustration below. Partially release the socket set screw (3) and release locknuts (3). Alter the setting of the stop screws, testing the trip before finally locking the locknuts and the socket set screw (4).

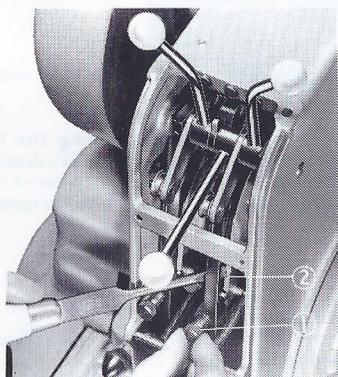


Fig. 41a

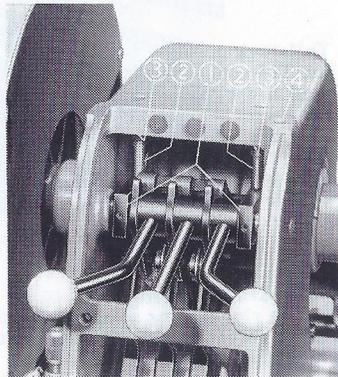


Fig. 41b

**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.

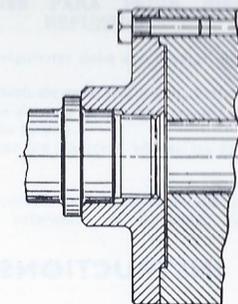


Fig. 42

**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. 42.

With four-jaw independent chucks, contact is made with the inner face of the chuck body, see Fig. 43.

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 eliminate chuck overhang, see Fig. 44.

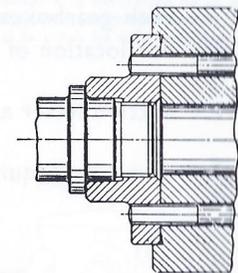


Fig. 43

- (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.

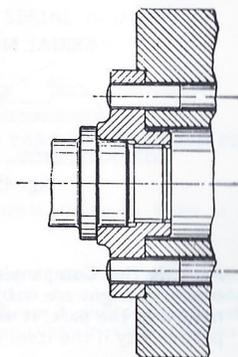


Fig. 44

- (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. 45 and 46.
2. Section letter and item number of part as listed.
3. Quantity Required.

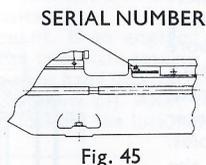


Fig. 45

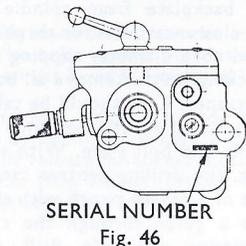


Fig. 46

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.

## INSTRUCTIONS POUR LES COMMANDES DE PIÈCES DE RECHANGE

Les indications ci-après sont à fournir avec la commande:

1. Type et numéro de série du tour, et, pour les tours équipés de boîtes de vitesses, également le numéro de série de cette boîte. Pour l'emplacement de ces nombres, voir fig. 45 et 46.
2. La lettre de la section de classification ainsi que le numéro de référence de la pièce, extrait du tableau.
3. Quantité désirée.

La politique de la Société visant toujours à l'amélioration des pièces chaque fois que l'occasion s'en présente, les dessins sont susceptibles de subir des modifications à tout instant. Dans certains cas, et en raison de la nature de la pièce, il sera nécessaire que nous fournissions des pièces supplémentaires, notamment si la pièce demandée a subi des modifications.

### SERIAL NUMBER

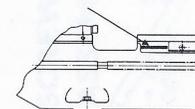
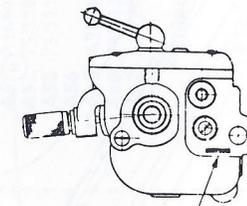


Fig. 45



### SERIAL NUMBER

Fig. 46

## INSTRUKTION FÜR DAS BESTELLEN VON ERSATZTEILEN

Eine Bestellung über Ersatzteile soll folgende Angaben enthalten:

1. Typ und Serien-Nummer der Drehbank, und in denjenigen Fällen wo die Drehbänke bereits mit Schnellwechselladkästen ausgestattet sind, auch die Serien-Nummern derselben. Wie die Nummern zu finden sind, zeigen Abb. 45 und 46.
2. Buchstabe der Schnittzeichnung und die in der Liste eingetragene Nummer des Ersatzteils.
3. Benötigte Anzahl.

Da das MYFORD-Werk jede Gelegenheit ergreift Seine Produkte den neuesten Anforderungen der Technik anzupassen, unterliegen die Zeichnungen stetigen Änderungen. Je nach der Art des Stückes kann es in speziellen Fällen unumgänglich sein, dass zusätzliche, ähnliche Ersatzteile geliefert werden müssen, besonders dann, wenn das verlangte Stück geändert wurde.

## INSTRUCCIONES PARA PEDIR PIEZAS DE REPUESTO

La información siguiente debe acompañar al pedido:

1. Tipo y número de serie del torno, y en el caso de torno dotado de caja de cambio, incluir también el número de la misma. Para localizar los números véanse las figuras 45 y 46.
2. Letra de la sección correspondiente del diagrama y número de referencia de la pieza, según está clasificada.
3. Cantidad requerida.

Como es norma de la Compañía el mejorar sus productos en toda ocasión que se requiera, el diseño está sujeto a modificaciones en cualquier momento. En algunos casos, debido a la naturaleza de la pieza, será necesario que suministremos partes anexas adicionales particularmente si la pieza ha sido modificada.

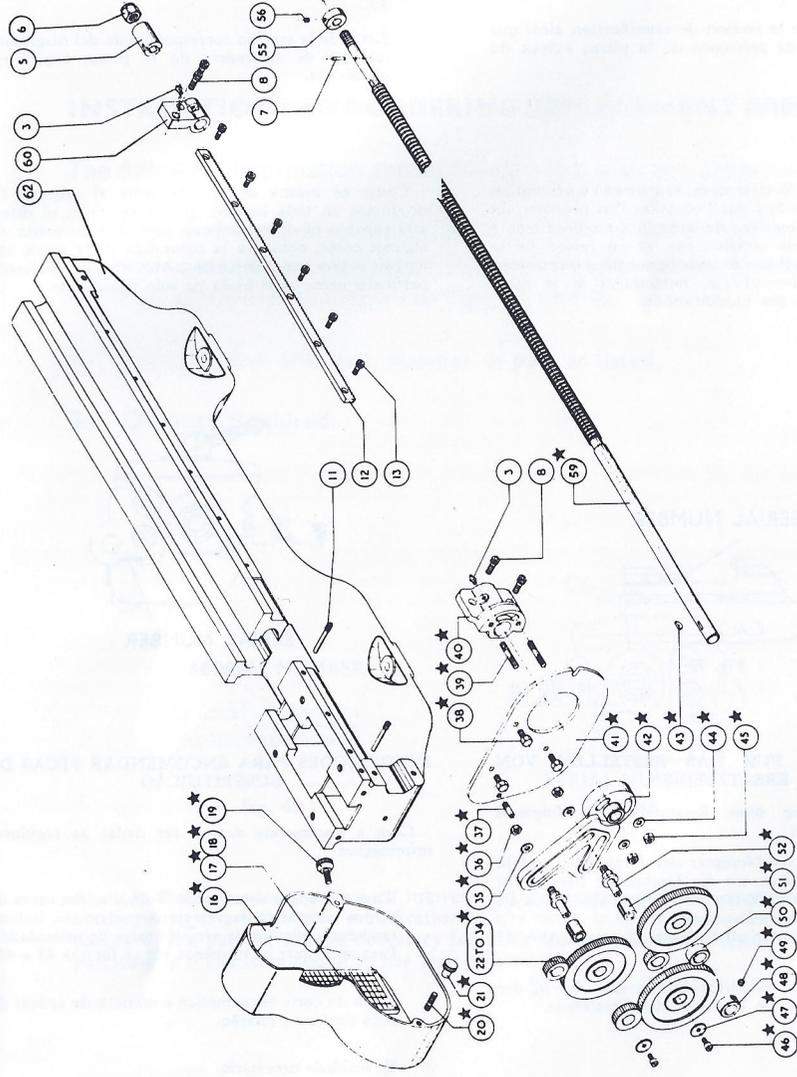
## INSTRUÇÕES PARA ENCOMENDAR PECAS DE SUBSTITUIÇÃO

Com a encomenda devem ser dadas as seguintes informações:

1. Tipo e número de série do Torno, e, em casos de tornos com caixa de velocidades adaptada, indicar também o número de série da caixa de velocidades. Para encontrar os números ver as figuras 45 e 46.
2. Letra do corte esquemático e número de ordem da peça conforme relação.
3. Quantidade necessária.

Como é norma da Firma melhorar os seus productos sempre que se proporcione ocasião, os desenhos estão sujeitos a modificação em qualquer altura. Em alguns casos, devido à natureza da peça, ser-nos-á necessário fornecer peças adicionais, especialmente se o artigo requerido tiver sido modificado.

# A



## BED, LEADSCREW AND GEAR TRAIN ASSEMBLY

### SECTION A

#### BED, LEADSCREW and GEAR TRAIN ASSEMBLY

Drg. Ref.	Part No.	Description	No. Off/Mc.	Drg. Ref.	Part No.	Description	No. Off/Mc.
A3	75/1113	Oil Nipple (2 B.A.)	2	A37	75/1326	Stud	1
A5	75/1114	Distance Collar	1	A38	A4725	Hexagon Head Set Screw ( $\frac{1}{4}$ " B.S.F. x $\frac{1}{2}$ ")	1
A6	75/1114	Simmonds' Nut ( $\frac{7}{16}$ " B.S.F.)	1	A39	74/1134/1	Stud	2
A7	75/1114	Pin	1	A40	73/1105/2	L.H. Leadscrew Bracket Assembly	1
A8	A2137	Cap Screw ( $\frac{1}{4}$ " B.S.F. x $\frac{5}{8}$ ")	4	A41	A4736	Change Gear Guard Backplate	1
A11	A2137	Thrust Screw	2	A42	A433	Change Gear Quadrant Assembly	1
A12	73/1112/1	Rack	1	A43	A44	Woodruff Key No. 404	1
A13	72/1106/2	Cap Screw (2 B.A. x $\frac{1}{2}$ ")	6	A44	A45	Washer ( $\frac{1}{4}$ ")	2
A16	A2639	Change Gear Guard	1	A45	A46	Hexagon Nut ( $\frac{1}{2}$ " B.S.F.)	2
A17	A2639	Screwcutting Chart	1	A46	A47	Cheese Head Screw (2 B.A. x $\frac{3}{8}$ ")	2
A18	75/1131	Rivets (No. 0 x $\frac{3}{16}$ ")	6	A47	VT220	Washer	2
A19	A4726	Thumb Screw	1	A48	MA2241	Collar	1
A20	75/1909	Stud	1	A49	MY2812	Grubscrew	1
A21	72/1116	Thumb Nut	1	A50	75/1132	Spacer	1
A22	72/1116	20T. Change Gear	2	A51	A1644	Change Gear Bush	2
A23	72/1117	"	1	A52	75/1107	Change Gear Stud	2
A24	72/1118	"	1	A53	75/1115/1	Thrust Collar	1
A25	72/1119	"	1	A54	A2054/2	Socket Setscrew ( $\frac{1}{4}$ " B.S.F. x $\frac{1}{4}$ ") (Cup Point)	1
A26	72/1120	"	1	A55	A60	Leadscrew	1
A27	72/1121	"	1	A56	74/1135/2	R.H. Leadscrew Bracket Assembly	1
A28	72/1122	"	1	A57	A8724/1	Bed	1
A29	72/1123	"	1				
A30	72/1124	"	1				
A31	72/1125	"	1				
A32	72/1126	"	1				
A33	72/1127	"	1				
A34	72/1128	"	1				
A35		Washer ( $\frac{1}{4}$ ")	1				
A36		Hexagon Nut ( $\frac{1}{2}$ " B.S.F.)	2				

\* These parts do not apply to ML7B Quick Change Lathes.

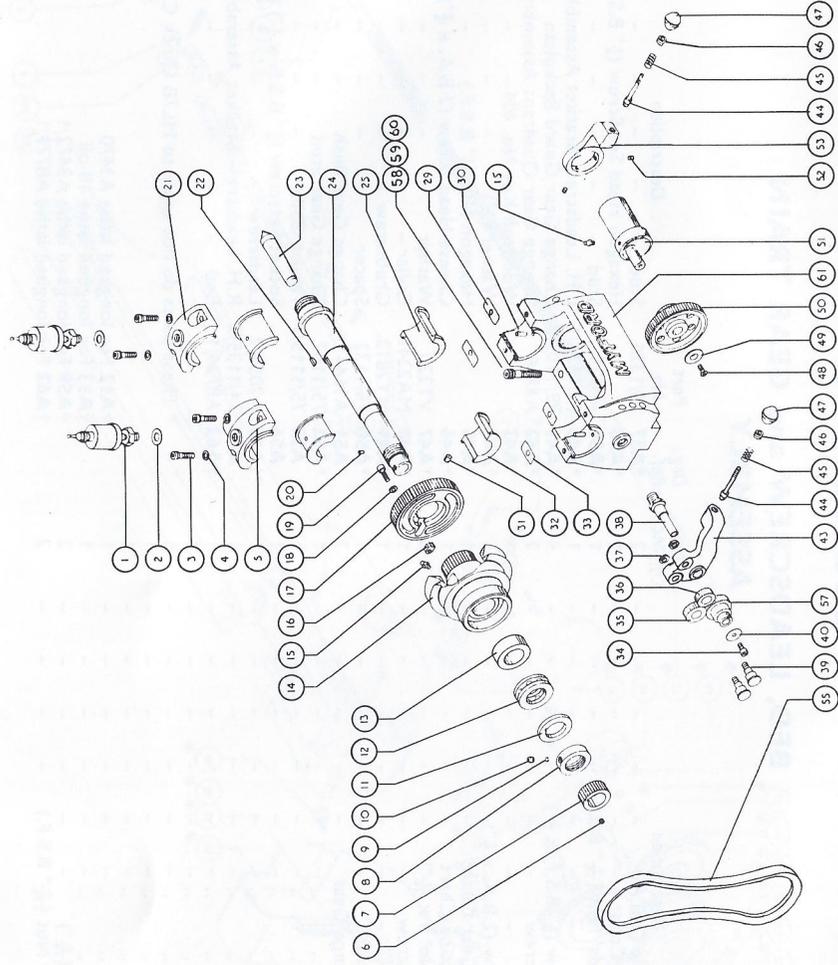
† A12 For longbed lathe A3470

† A13 For longbed lathe 10 off

† A59 For longbed lathe A3472/1

† A62 For longbed lathe A8779/1

# B



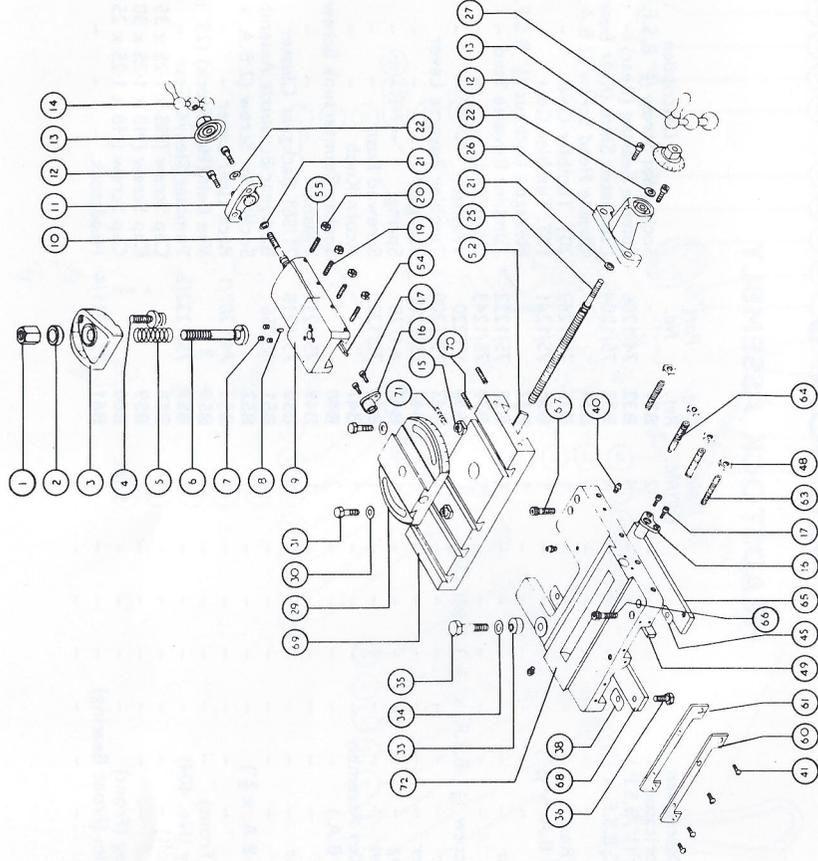
## HEADSTOCK ASSEMBLY

### SECTION B

#### HEADSTOCK ASSEMBLY

Drg. Ref.	Part No.	Description	No. Off/Mc.	Drg. Ref.	Part No.	Description	No. Off/Mc.
B1	MY4107	Sight-feed Lubricator	2	B31	74/1206	Socket Set Screw ( $\frac{1}{8}$ " B.S.F. x $\frac{1}{4}$ " (Cup Point))	1
B2	B3	Fibre Washer ( $\frac{1}{8}$ " B.S.P.)	4	B32	75/1204	Spindle Bearing (Rear)	1 set
B3	B33	Cap Screw ( $\frac{1}{4}$ " B.S.F. x $\frac{7}{8}$ "	4	B33		Laminated Shim (Rear Bearing)	2
B4	75/1984	Washer	4	B34		Cheese Head Screw (2 B.A. x $\frac{3}{8}$ "	1
B5	73/1202	Bearing Cap (Rear)	1	B35	75/1242	20T. Tumbler Gear	1
B6	MY2820	Grubscrew (2 B.A. x $\frac{3}{16}$ "	1	B36	75/1241	18T. Tumbler Gear	1
B7	75/1246	25T. Gear	1	B37		Hexagon Locknut ( $\frac{1}{4}$ " B.S.F.)	2
B8	75/1239	Locking Collar	1	B38	75/1222	Tumbler Reverse Stud	1
B9	MY4402	Copper Pad	1	B39	75/1243	Gear Stud	2
B10		Socket Set Screw ( $\frac{1}{4}$ " B.S.F. x $\frac{3}{16}$ " (Half Dog Point))	1	B40	VT220	Washer	1
B11	MF59/1	Thrust Washer	1	B43	73/1208	Tumbler Reverse Lever	1
B12		Thrust Bearing	1	B44	75/1219	Plunger	2
B13	75/1240	Distance Sleeve	1	B45	A4728	Spring	2
B14	74/1234	Vee Cone Pulley Assembly	1	B46	75/1220	Screwed Bush	2
B15		Oil Nipple (2 B.A.)	1	B47		Acorn Knob	2
B16	75/1227	Backgear Key	2	B48		Socket Countersunk Screw (2 B.A. x $\frac{1}{2}$ " Washer ( $\frac{1}{16}$ "	1
B17	73/1209	65T. Back gear	1	B49	75/1217	Washer	1
B18		Washer ( $\frac{1}{16}$ "	1	B50	75/1218	21/56T Backgear Cluster	1
B19		Cap Screw (2 B.A. x $\frac{5}{8}$ "	1	B51	A1856	Backgear Eccentric Assembly	1
B20	75/1231	Pin	1	B52		Socket Set Screw (2 B.A. x $\frac{1}{4}$ " (Cup Point))	2
B21	73/1201	Bearing Cap (Front)	1	B53	74/1207/1	Back Gear Lever	1
B22		Woodruff Key (No. 404)	1	B55		Vee Belt (Headstock) (23" inside Length)	1
B23	75/1249	60° Centre (Soft)	1	B57	75/1232/2	Tumbler Sleeve Gear	1
B24	73/1230	Spindle	1	B58		Cap Screw (M8 x 1.25 x 30 mm)	2
B25	74/1205	Spindle Bearing (Front)	1	B59		Cap Screw (M8 x 1.25 x 30 mm)	1
B29	75/1203	Laminated Shim (Front Bearing)	1 set	B60		Cap Screw (M8 x 1.25 x 25 mm)	1
B30	75/1228	Pin	2	B61	71/1211/4	Headstock	1

# C



## CARRIAGE ASSEMBLY

## SECTION C

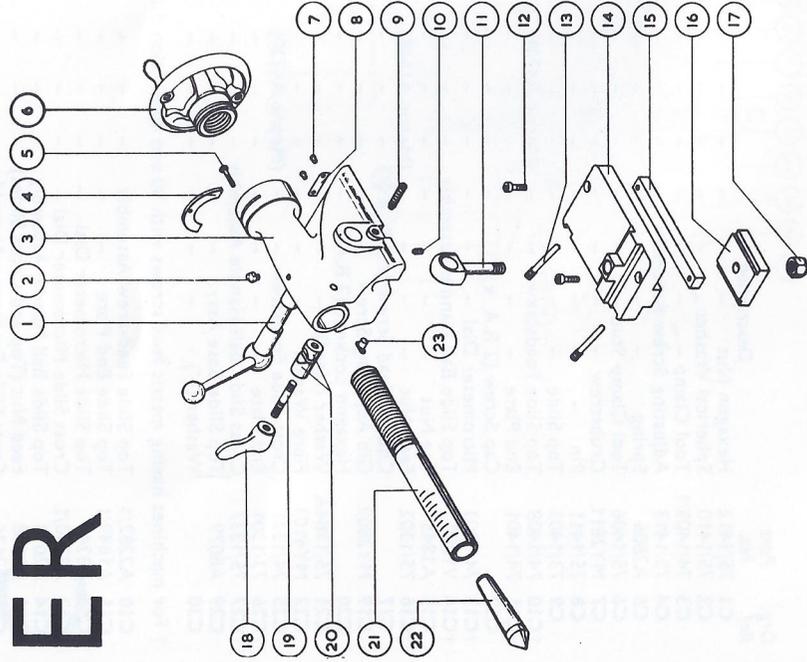
### CARRIAGE ASSEMBLY

Drg. Ref.	Part No.	Description	No. Off/Mc.	Drg. Ref.	Part No.	Description	No. Off/Mc.
C1	75/1412	Hexagon Nut	1	C31	A7742	Hexagon Head Bolt	2
C2	75/1410	Spherical Washer	1	C33	75/1312	Clamp Eccentric	1
C3	74/1409/1	Tool Clamp	1	C34		Washer ( $\frac{3}{8}$ "	1
C4	75/1413	Adjusting Screw Assembly	1	C35		Hexagon Head Bolt ( $\frac{5}{16}$ " B.S.F. x $1\frac{1}{2}$ " (Hard)	1
C5	A2806	Spring	1	C36		Hexagon Head Set Screw ( $\frac{1}{4}$ " B.S.F. x $\frac{5}{8}$ "	3
C6	75/1406	Tool Clamp Stud	1	C38	75/1304	Laminated Shim (Rear)	3
C7	MY2811	Grubscrew	3	C40		Oil Nipple (2 B.A.)	3
C8	75/1411	Pin	1	C41		Round Head Screw (4 B.A. x $\frac{3}{8}$ "	4
C9	73/1403	Top Slide	1	C45	75/1305	Laminated Shim (Front)	2
†C10	74/1408	Top Slide Feedscrew	1	C48		Hexagon Locknut ( $\frac{1}{2}$ " B.S.F.)	4
†C11	74/1401	End Plate	1	C49	74/1319/1	Saddle Gib Strip	4
C12		Cap Screw (2 B.A. x $\frac{5}{8}$ "	1	C52	74/1320/3	Cross Slide Gib Strip	1
†C13	74/1303	Micrometer Dial	4	C54	75/1405/2	Top Slide Gib Strip	1
†C14	V1080	Top Slide Ball Handle Assembly	2	C55	MY2803	Gib Strip Adjusting Screw	2
C15	A1845	Tee Nut	1	C60	A8736	Wiper Housing	1
†C16	75/1302	Feed Nut	2	C61	A8735	Wiper	1
C17		Cheese Head Screw (4 B.A. x $\frac{3}{8}$ "	2	C63	A7760	Adjusting Screw	3
C19	MY2802	Gib Adjusting Screw	4	C64	A7424/1	Adjusting Screw	1
C20		Hexagon Locknut (2 B.A.)	2	C65	A2065	Saddle Strip (Front)	1
C21	75/1984A	Fibre Washer	4	C66		Cap Screw ( $\frac{1}{2}$ " B.S.F. x $1\frac{1}{4}$ "	1
C22	MY4103	Cross Slide Feedscrew	2	C67		Cap Screw ( $\frac{1}{2}$ " B.S.F. x $\frac{5}{8}$ "	1
†C25	74/1321	Washer (Hard)	4	C69	A2122	Cross Slide	1
†C26	73/1301	End Plate	2	C70	73/1308/1	Socket Setscrew (Wedglok)	1
†C27	75/1337	Cross Slide Ball Handle Assembly	1	C71	A8623	Socket Setscrew (M5 x 20 mm) (Dog Point)	6
C29	A8079	Top Slide Base Assy.	1	C72	A8734/1	Saddle	2
C30		Washer ( $\frac{3}{4}$ "	2				1
C10	A2282/1	Top Slide Feedscrew Assembly	1	C27	A2073	Cross Slide Ball Handle Assembly	1
C11	A1649/1	Top Slide End Plate	1	A2058	Diaphragm Washer	1	
C13	A3249	Top Slide Micrometer Dial	1	A1541/1	Screw—Ball Handle Securing	2	
C14	A3250/1	Cross Slide Micrometer Dial	1	A2229	Adjusting Collar	2	
C15	A2093	Top Slide Ball Handle Assembly	1	MY4402	Copper Pad	2	
C16	A1648	Feed Nut (Top and Cross Slides)	2		Socket Setscrew ( $\frac{1}{2}$ " B.S.F. x $\frac{3}{16}$ " (Half Dog Point)	2	
C25	A2636	Cross Slide Feedscrew Assembly	1				1
C26	A1384	Cross Slide End Plate	1				1

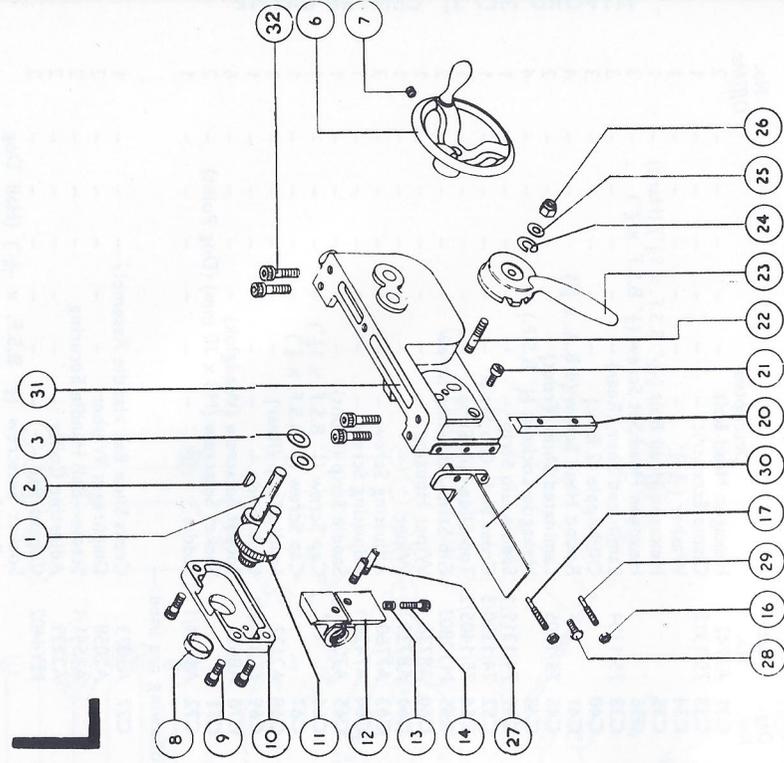
† For machines having metric feed screws with 80 and 40 division dials the following are used:—

C10	A2282/1	Top Slide Feedscrew Assembly	1	C27	A2073	Cross Slide Ball Handle Assembly	1
C11	A1649/1	Top Slide End Plate	1	A2058	Diaphragm Washer	1	
C13	A3249	Top Slide Micrometer Dial	1	A1541/1	Screw—Ball Handle Securing	2	
C14	A3250/1	Cross Slide Micrometer Dial	1	A2229	Adjusting Collar	2	
C15	A2093	Top Slide Ball Handle Assembly	1	MY4402	Copper Pad	2	
C16	A1648	Feed Nut (Top and Cross Slides)	2		Socket Setscrew ( $\frac{1}{2}$ " B.S.F. x $\frac{3}{16}$ " (Half Dog Point)	2	
C25	A2636	Cross Slide Feedscrew Assembly	1			1	
C26	A1384	Cross Slide End Plate	1			1	

# ER



## TAILSTOCK ASSEMBLY



## APRON ASSEMBLY

### SECTION ER

#### TAILSTOCK ASSEMBLY

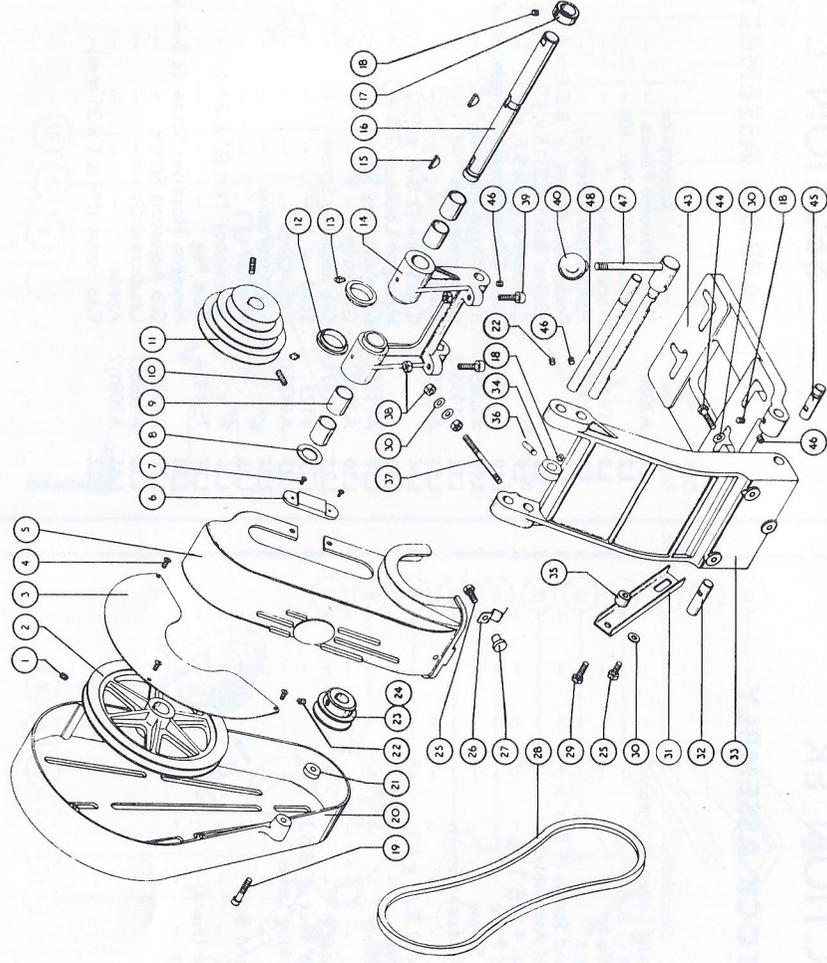
Drg. Ref.	Part No.	Description	No. Off/Mc.
ER1	A2138	Eccentric and Lever Assembly	-
ER2	A2797	Oil Nipple (2 B.A.)	-
ER3	75/1509	Tailstock Body	-
ER4	75/1509	Thrust Plate	-
ER5	75/1520	Round Head Screw (4 B.A. x 3/4")	-
ER6	75/1520	Handwheel Assembly	-
ER7	V1060	Rivets (No. 4 x 1 1/8")	2
ER8	A2146	Graduated Plate	-
ER9	A2139	Adjusting Screw	2
ER10	A2140	Eccentric Locating Screw	-
ER11	A2140	Eye Bolt	1
ER12	A2137	Cap Screw (2 B.A. x 5/8")	2
ER13	A2099	Thrust Screw	2
ER14	A2136	Tailstock Base	-
ER15	75/1514	Gib Strip	1
ER16	75/1514	Clamp Plate	1
ER17	75/1504	'Simmonds' Nut (3/8" B.S.F.)	1
ER18	V130	Barrel Locking Lever	1
ER19	75/1507	Stud	1
ER20	A2798	Pad Bolt and Bush	1
ER21	75/1248	Barrel	1
ER22	75/1506	60° Centre (Hard)	1
ER23	75/1506	Barrel Key	-

### SECTION L

#### APRON ASSEMBLY

Drg. Ref.	Part No.	Description	No. Off/Mc.
L1	A2086	Hand Traverse Pinion	1
L2	MY4106	Woodruff Key No. 404	1
L3	A2087	Fibre Washer	2
L6	A2087	Handwheel Assembly	1
L7	75/1340	Socket Set Screw (1/4" B.S.F. x 1/4") (Cup Point)	1
L8	A2085	'Ollite' Bush (CT 15 x 1/4")	1
L9	A1975/2	Cap Screw (1/4" B.S.F. x 3/8")	3
L10	A1975/2	Gear Cover Assembly (Includes L8)	1
L11	A4729	Rack Pinion Assembly	1
L12	A4729	Leadscrew Nut	1
L13	A9337	Spring	1
L14	A2082	Cap Screw (2 B.A. x 1 3/4")	1
L16	A2147	Hexagon Locknut (2 B.A.)	2
L17	V123	Gib Adjusting Screw	1
L20	A2147	Gib Strip	1
L21	A1837/1	Gib Securing Screw	2
L22	V123	Stud	1
L23	75/1326	Cam Lever	1
L24	A9338	Spring Washer	1
L25	A4188/1	Washer (1/4")	1
L26	A4188/1	'Simmonds' Nut (1/4" B.S.F.)	1
L27	A4188/1	Cam Peg	2
L28	A4188/1	Hexagon Head Set Screw (2 B.A. x 1/2")	1
L29	A4188/1	Gib Adjusting Screw	1
L30	A2081/2	Leadscrew Guard	1
L31	A2081/2	Apron	1
L32	A2081/2	Cap Screw (M6 x 1 x 25 mm)	4

# F



## MOTORISING ASSEMBLY

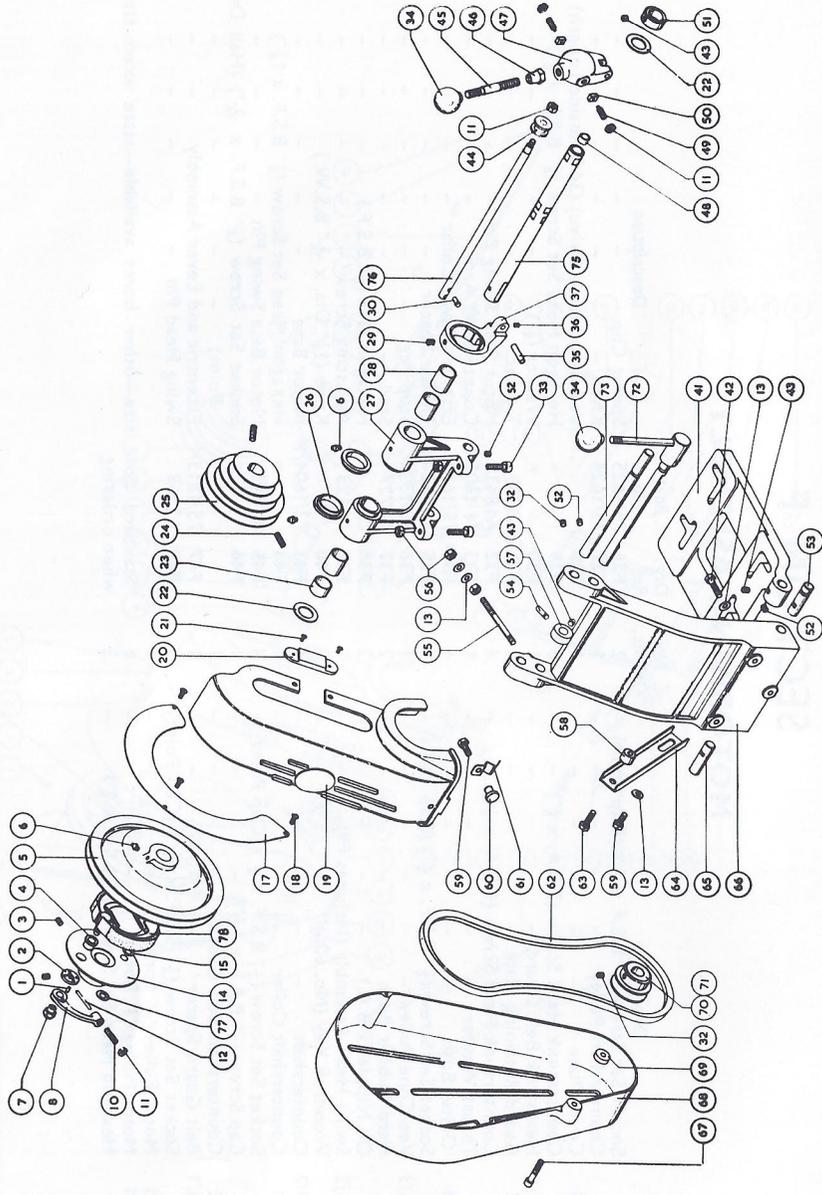
### SECTION F

#### MOTORISING ASSEMBLY

Drq. Ref.	Part No.	Description	No. Off/Mc.	Drq. Ref.	Part No.	Description	No. Off/Mc.
F1	A1832	Socket Set Screw ( $\frac{1}{4}$ " B.S.F. x $\frac{3}{8}$ ") (Cup Point)	2	F26	75/1625	Spring Clip	1
F2	73/1628	Countershaft Pulley	1	F27	75/1624	Knob	1
F4	72/1621/1	Cover Plate	1	F28		Vee Belt (Motor Drive) (34.5" Inside Length)	1
F5	75/1627	Countersunk Head Screw (2 B.A. x $\frac{3}{8}$ ")	3	F29		Hexagon Head Set Screw ( $\frac{1}{4}$ " B.S.F. x $\frac{7}{8}$ ")	1
F6		Headstock Belt Guard	1	F30		Washer ( $\frac{1}{4}$ ")	6
F7		Guard Retaining Plate	2	F31	A1859	Tie Bar	1
F8	A1973	Countersunk Head Screw (4 B.A. x $\frac{1}{4}$ ")	4	F32	A1843	Motor Base Swing Pin	1
F9	A2834/1	Thrust Washer	1	F33	71/1602/3	Countershaft Arm	1
F10		'Oilite' Bush	4	F34	75/1612	Eccentric Shaft Collar	1
F11	73/1626/3	Socket Set Screw ( $\frac{1}{4}$ " B.S.F. x $\frac{3}{8}$ ") (Cup Point)	4	F35	A1862	Tie Bar Spacer	1
F12	A1227	Vee Cone Pulley	2	F36	75/1326	Stop Peg	1
F13		Hard Rubber Bush	1	F37	A4727	Stud	1
F14	74/1631/2	Oil Nipple (2 B.A.)	2	F38		Hexagon Nut ( $\frac{1}{4}$ " B.S.F.)	1
F15		Swing Head Assembly (Includes F9)	2	F40	A2123	Adjusting Screw	2
F16	74/1619/2	Countershaft	1	F43	72/1604/1	Motor Base	1
F17	MA6001	Countershaft Collar	1	F44		Hexagon Head Set Screw ( $\frac{1}{4}$ " B.S.F. x $1\frac{1}{4}$ ")	3
F18		Socket Set Screw ( $\frac{1}{4}$ " B.S.F. x $\frac{1}{4}$ ") (Cup Point)	4	F45	A1842	Motor Base Swing Pin	1
F19	72/1622	Cap Screw ( $\frac{1}{4}$ " B.S.F. x $1\frac{1}{4}$ ")	1	F46		Socket Set Screw ( $\frac{1}{4}$ " B.S.F. x $\frac{5}{8}$ ") (Half Dog Point)	3
F20	75/1983/1	Countershaft Belt Guard	1	F47	75/1613/1	Eccentric and Lever Assembly	1
F22		Belt Guard Spacer	1	F48	A3969	Swing Head Pin	1
F23	A1852/1	Socket Set Screw ( $\frac{1}{4}$ " B.S.F. x $\frac{5}{8}$ ") (Cup Point)	2				
F24	A1851/1	Motor Pulley ( $\frac{3}{8}$ " Bore)	1				
F25		Hexagon Head Set Screw ( $\frac{1}{4}$ " B.S.F. x $\frac{5}{8}$ ")	2				

\*Standard bore size—other bores available—state exact size required when ordering.

# P



## MOTORISING AND 1466 CLUTCH ASSEMBLY

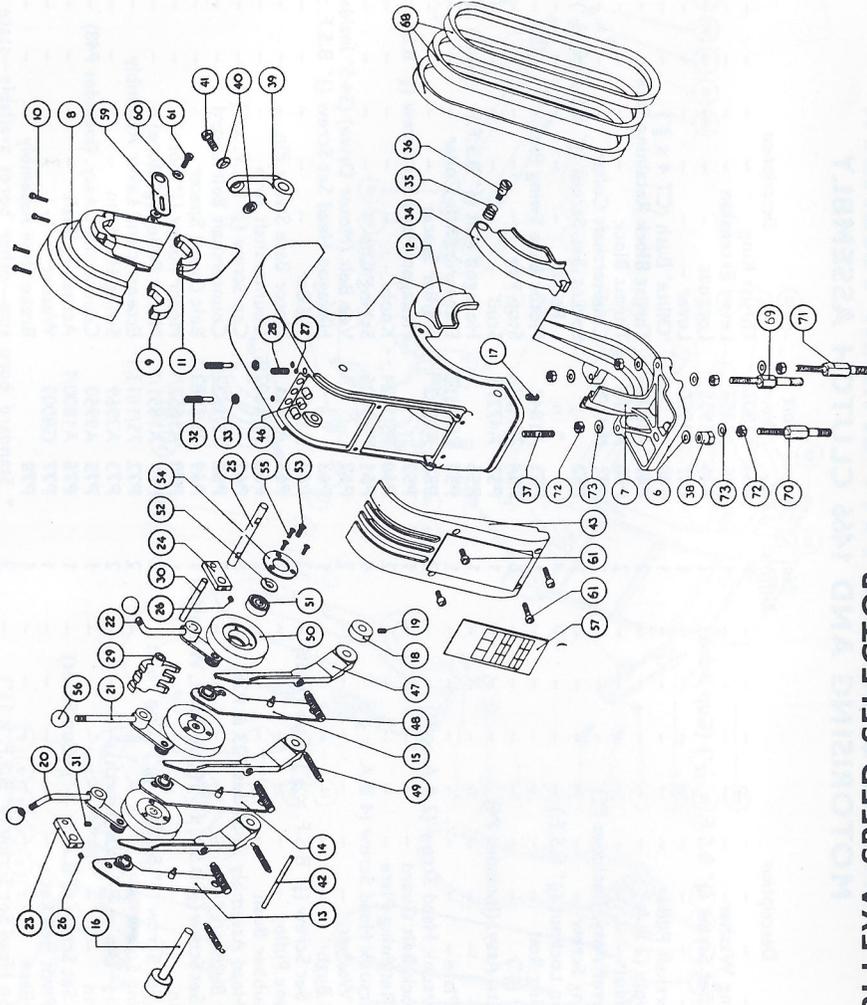
### SECTION P

#### MOTORISING AND 1466 CLUTCH ASSEMBLY

Drg. Ref.	Part No.	Description	No. Off/Mc.	Drg. Ref.	Part No.	Description	No. Off/Mc.
P1	A1956	Pin	1	P44	A1802	Thrust Ring	1
P2	A1795	Adjusting Washer	1	P45	A1954	Lever Extension	1
P3	A1795	Socket Set Screw ( $\frac{1}{4}$ " B.S.F. x $\frac{7}{16}$ " (Cup Point))	1	P46	A1955	Locknut	1
P4	A1792	Bush	2	P47	A1950	Lever	1
P5	A1789/1	Countershaft Pulley	1	P48	A1809	'Oilite' Bush (CT 4 x $\frac{3}{8}$ ")	1
P6	A1953	Oil Nipple (2 B.A.)	1	P49	A1810	Thrust Block Retaining Screw	2
P7	A1953	Sleeve Nut	2	P50	A1810	Thrust Block	2
P8	A1958	Cam Lever Assy. (Includes P1)	1	P51	MA6001	Countershaft Collar	1
P10	A1797	Adjusting Screw	1	P52		Socket Set Screw ( $\frac{1}{4}$ " B.S.F. x $\frac{5}{16}$ " (Half Dog Point))	1
P11	A1803	Hexagon Locknut ( $\frac{1}{4}$ " B.S.F.)	4	P53	A1842	Motor Base Swing Pin	3
P12	A1803	Operating Rod	1	P54	75/1326	Stop Peg	1
P13	A9951	Washer ( $\frac{1}{4}$ ")	6	P55	A4727	Stud	1
P14	A1952	Backplate Assy. (Includes P4)	1	P56	75/1612	Hexagon Nut ( $\frac{1}{4}$ " B.S.F.)	1
P15	A1952	Shim	1	P57	75/1612	Eccentric Shaft Collar	1
P17	A2095	Cover Plate	1	P58	A1862	Tie Bar Spacer	1
P18	72/1621/1	Countersunk Head Screw (2 B.A. x $\frac{3}{8}$ ")	3	P59		Hexagon Head Set Screw ( $\frac{1}{4}$ " B.S.F. x $\frac{3}{8}$ ")	2
P19	75/1627	Headstock Belt Guard	1	P60	75/1624	Knob	1
P20		Guard Retaining Plate	1	P61	75/1625	Spring Clip	1
P21		Countersunk Head Screw (4 B.A. x $\frac{1}{4}$ ")	2	P62		Hexagon Head Set Screw ( $\frac{1}{4}$ " B.S.F. x $\frac{7}{8}$ " Inside Length)	1
P22	A1973	Thrust Washer	2	P63	A1859	Tie Bar	1
P23	A9943	'Oilite' Bush	1	P64	A1843	Motor Base Swing Pin	1
P24		Socket Set Screw ( $\frac{1}{4}$ " B.S.F. x $\frac{3}{8}$ " (Cup Point))	2	P65	A1843	Countershaft Arm	1
P25	73/1626/3	Ve Cone Pulley	1	P66	71/1602/5	Cap Screw ( $\frac{1}{4}$ " B.S.F. x $1\frac{1}{4}$ ")	1
P26	A1227	Hard Rubber Bush	2	P67	72/1622	Belt Guard Spacer	1
P27	A4732	Swing Head Assembly (Includes P23 & P28)	1	P68	75/1983/1	Belt Guard Spacer	1
P28	A2834/1	'Oilite' Bush	3	P69	75/1983/1	Motor Pulley ( $\frac{1}{2}$ " Bore)	1
P29		Socket Set Screw ( $\frac{1}{4}$ " B.S.F. x $\frac{3}{8}$ " (Cup Point, Wedglok))	1	P70	75/1983/1	Motor Pulley ( $\frac{3}{8}$ " Bore)	1
P30	A1801	Stop Pin	1	*P71	A1851/1	Motor Pulley ( $\frac{3}{8}$ " Bore)	1
P32	A2123	Socket Set Screw ( $\frac{1}{4}$ " B.S.F. x $\frac{3}{8}$ " (Cup Point))	2	P72	75/1613/1	Eccentric and Lever Assembly	1
P33	A2123	Adjusting Screw	2	P73	A3969	Swing Head Pin	1
P34	A1807	Knob ( $1\frac{1}{4}$ " Dia. x $\frac{1}{8}$ " Whitworth)	2	P75	A9950	Countershaft Assy. (Includes P48)	1
P35	A1807	Pivot Pin	1	P76	A1800/1	Actuating Shaft	1
P36	A1805	Socket Set Screw (2 B.A. x $\frac{3}{8}$ " (Cup Point))	1	P77	G8003	Washer	1
P37	A1805	Lever Pivot Bracket	1	P78		Brake Shoe Assembly	1
P41	72/1604/1	Motor Base	1				
P42		Hexagon Head Set Screw ( $\frac{1}{4}$ " B.S.F. x $1\frac{1}{4}$ ")	3				
P43		Socket Set Screw ( $\frac{1}{4}$ " B.S.F. x $\frac{1}{4}$ ") (Cup Point)	4				

\* Standard bore size—other bores available—state exact size required when ordering.

# S

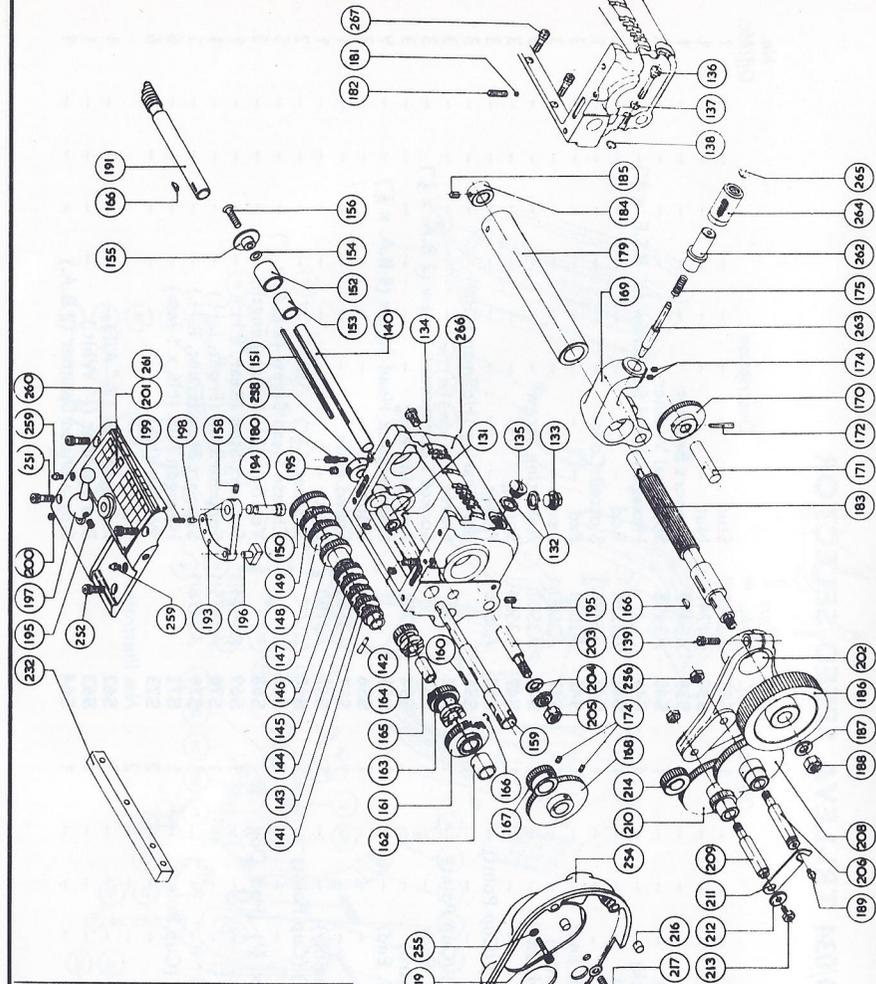
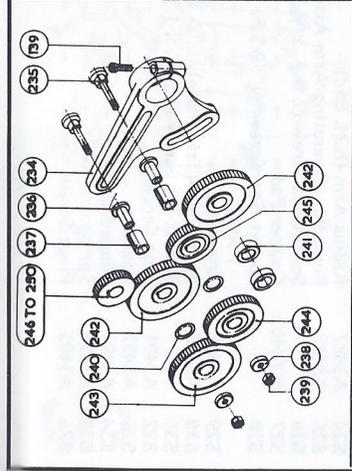


**20/034 TRI-LEVA SPEED SELECTOR**

## SECTION S

### 20/034 TRI-LEVA SPEED SELECTOR

Drg. Ref.	Part No.	Description	No. Off/Mc.	Drg. Ref.	Part No.	Description	No. Off/Mc.
S6	A3477/1	Washer (1/4")	1	S37	A3496	Stud	1
S7	A3478	Base	1	S38	C1241	Nut	1
S8	A3479	Belt Trap (Countershaft)	1	S39	A3497	Support Bracket	1
S9	A3479	Clamp (Countershaft L.H. End)	1	S40	A3498	Spherical Washer	2
S10	A3480	Cap Screw (4 B.A. x 3/8") (Nyllock)	4	S41	A3498	Hexagon Head Set Screw (1/4" B.S.F. x 3/4")	1
S11	A3480	Clamp (Countershaft R.H. End)	1	S42	A3514	Rod	1
S12	A3481	Main Frame	1	S43	A3499/1	Slotted Cover	1
S13	A4720A	Tensioning Arm Assembly (L.H. End)	1	S46	A2023	Pad	3
S14	A4720B	Tensioning Arm Assembly (Centre)	1	S47	A3500/1	Lever	3
S15	A4720C	Tensioning Arm Assembly (R.H. End)	1	S48	A3502	Adjusting Screw	3
S16	A3483	Pivot Pin (Lever Assembly)	1	S49	A3504	Spring	3
S17	A3484	Socket Set Screw (1/4" B.S.F. x 1/2") (Cup Point)	1	S50	A3505	Pulley	1
S18	A3484	Collar	1	S51	A3507	Ball Bearing (Hoffman U109)	3
S19	A3485A	Socket Set Screw (2 B.A. x 3/8") (Cup Point)	1	S52	A3507	Cover	3
S20	A3485B	Operating Arm Assembly (L.H. End)	1	S53	A3781	Socket Countersunk Screw (2 B.A. x 1/2")	3
S21	A3485C	Operating Arm Assembly (Centre)	1	S54	A3781	Retaining Ring	3
S22	A3486	Operating Arm Assembly (R.H. End)	1	S55	A3781	Countersunk Head Screw (4 B.A. x 3/8")	9
S23	A3486	Radius Arm (L.H. End)	1	S56	A3519/1	Knob	3
S24	A3487	Radius Arm (R.H. End)	1	S57	A3780	Speed Plate	1
S25	A3488	Pivot Pin (Operating Arm Assembly)	1	S59	A3780	Link	1
S26	A3488	Socket Set Screw (2 B.A. x 3/8") (Cup Point)	1	S60	A3780	Washer (3/16")	1
S27	MY4402	Copper Pad	2	S61	A3780	Cheese Head Screw (2 B.A. x 1/2")	2
S28	MY4402	Socket Set Screw (1/4" B.S.F. x 3/8") (Half Dog Point)	1	S69	A3474/1	Vee Belt (23" Inside Length)	5
S29	A3489	Trip Plate	1	S70	A3475/1	Support Stud (Rear, L.H.)	1
S30	A3490	Pivot Pin—(Trip Plate)	1	S71	A3476/1	Support Stud (Front, L.H.)	1
S31	A3491	Socket Set Screw (2 B.A. x 1/4") (Cup Point)	1	S72	A3476/1	Support Stud (Front, R.H.)	1
S32	A3491	Stop Screw	1	S73	A3476/1	Hexagon Nut (M6 x 1 mm)	6
S33	A3492	Locknut	2	S62	Not Illustrated	Washer (M6)	6
S34	A3493	Hinged Cover	1	S63	Not Illustrated	Hexagon Key (3/8" A/F)	1
S35	A3494	Spring	1	S64	Not Illustrated	Box Spanner (1/2" Whit.)	1
S36	A3495	Pivot Screw	1	S64	Not Illustrated	Single Ended Spanner (2 B.A.)	1



# MYFORD QUICK CHANGE GEARBOX FOR ML7 AND SUPER 7 LATHES

NOS. 1480 (ML7) AND 1680 (SUPER 7)

## PARTS LIST FOR QUICK CHANGE GEARBOX

Part No.	Description	No. Off/Mc.	Part No.	Description	No. Off/Mc.
131	Bush	1	167	26T. Gear	1
132	Sealing Washer (Dowty Selon Mark 5)	1	168	Woodruff Key (No. 404)	1
133	Drain Plug ( $\frac{1}{8}$ " B.S.P.)	2	169	52T. Gear	3
134	Oil Level Plug	1	170	Selector	1
135	Plug	1	171	39T. Tumbler Gear	1
136	Captive Screw	1	172	Spindle	1
137	Spring Washer ( $\frac{1}{8}$ " Terry's 159)	1	173	Taper Pin (No. 0 x $1\frac{1}{8}$ ")	1
138	'O' Ring (Ref. B.S. 011)	1	174	Socket Setscrew (2 B.A. x $\frac{1}{4}$ ") (Cup Point)	4
139	Cap Screw ( $\frac{1}{8}$ " B.S.F. x $\frac{3}{8}$ ")	1	175	Spring	1
140	Shaft	1	179	Guide Bar	1
141	16T. Gear	1	180	Peg End Grubscrew	1
142	Taper Pin (No. 0 x $\frac{3}{8}$ ")	1	181	Copper Pad	1
143	18T. Gear	1	182	Input Shaft	1
144	19T. Gear	1	184	Collar	1
145	20T. Gear	1	185	Socket Setscrew ( $\frac{1}{8}$ " B.S.F. x $\frac{3}{8}$ ") (Half Dog Point)	1
146	22T. Gear	1	186	Collar	1
147	24T. Gear	1	187	Socket Setscrew ( $\frac{1}{8}$ " B.S.F. x $\frac{3}{8}$ ") (Cup Point)	1
148	26T. Gear	1	188	Washer ( $\frac{7}{16}$ " B.S.F.)	1
149	28T. Gear	1	191	Hexagon Nut ( $\frac{1}{2}$ " B.S.F.)	1
150	32T. Gear	1	193	Oil Nipple (2 B.A.)	1
151	Key	1	194	Leadscrew	1
152	A3003	1	195	Quadrant Plate	1
153	A3007	1	196	Pivot Pin	1
154	A2752	1	197	Socket Setscrew ( $\frac{1}{8}$ " B.S.F. x $\frac{3}{8}$ ") (Cup Point)	3
155	A2492	1	198	Thrust Block	1
156	Clamping Sleeve	1	199	Upper Lever	1
158	Laminated Washer	1	200	Locating Pin	1
159	Clamp Washer	1	201	Spring	1
160	Socket Countersunk Screw ( $\frac{1}{4}$ " B.S.F. x 1")	1		Grubscrew	1
161	Layshaft	1		Screwcutting Chart	1
162	Key	1			
163	32T. Gear	1			
	Oilite Bush	1			
	24T. Sliding Gear	1			

**PARTS LIST FOR QUICK CHANGE GEARBOX (contd.)**

Drg. Ref.	Part No.	Description	No. Off/Mc.	Drg. Ref.	Part No.	Description	No. Off/Mc.
202	A2328/1	Change Gear Quadrant	1	227	A2528/1	Changewheel Guard (Super 7)	1
203	A3015	Anchor Pin	1	228	A7934	Metric Screwwcutting Chart	1
204		Washer (3/8" Dia.)	2	229	A3018	Spring Clip	1
205		Hexagon Nut (5/8" B.S.F.)	1	232	A2754	Drilling Template	1
206	A2330/2	Gear Stud	1	233		Knob (F. W. Evans, reference No. 780)	1
207		Hexagon Lock Nut (5/8" B.S.F.)	2	251		Cap Screw (1/4" B.S.F. x 3/8")	3
208	A2326/1	19/57 T. Reversible Cluster Gear	1	252		Cap Screw (1/4" B.S.F. x 1/2")	1
209	A2329/2	Gear Stud	1	254	A2963	Backplate	1
210	A2325/1	19/57 T. Fixed Cluster Gear	1	255		Washer (1 1/8")	1
211	A2331	Link	1	256		Hexagon Lock Nut (7/8" B.S.F.)	2
212	VT220	Washer	1	258	75/1115/1	Collar	1
213	A1999	Retaining Screw	1	259	A2977/2	Oil Nipple (Lumatic HDFV4/45)	2
214	A3115	24 T. Gear	1	260		Top Cover	1
216	A2023	Pad	2	261		Rivet (No. 0 x 3/8")	1
217		Hexagon Head Set Screw (1/4" B.S.F. x 1")	1	262	A2297/1	Plunger Housing	1
219		Cap Screw (2 B.A. x 1")	1	263	A2279/1	Plunger	1
220	A3017	Stud	1	264	A2519/1	Knob	1
221		Washer (1/4" dia.)	3	265		Cir-clip (1/4" dia. external)	1
222		Hexagon Lock Nut (1/4" B.S.F.)	2	266	A2965/2	Gearbox	1
223	A2024	Hinge Screw	1	267		Cap Screw (M6 x 1 x 20 mm)	2
224	A2012	Tension Spring	1				
225		Round Head Screw (2 B.A. x 1 1/8")	1				
226	A2527/1	Changewheel Guard (ML7)	3				

Dowels, 268 (A9287) are fitted to R.H. leadscrew bracket, A60, on quick change lathes only

**METRIC CONVERSION SET**

139	A2469	Cap Head Screw (1/4" B.S.F. x 3/4")	1	242	72/1125	60T. Change Gear	2
234	A1496	Change Gear Quadrant	1	243	A5396	63T. Change Gear	1
235	A1501	Changewheel Stud	2	244	72/1123	50T. Change Gear	2
236	A1500	Sleeve	2	245	72/1122	45T. Change Gear	2
237	A1500	Bush	2	246	A5395	28T. Change Gear	1
238	A1498	Washer	2	247	72/1118	30T. Change Gear	1
239	A1499	Hexagon Nut (1/4" B.S.F.)	2	248	72/1119	35T. Change Gear	1
240	A1499	Changewheel Spacer	2	249	72/1121	40T. Change Gear	1
241	A2604	Distance Piece	2	250	72/1124	55T. Change Gear	1

**GENERAL POINTS ON CENTRE LATHE PRACTICE**

- Clean and oil your machine after use.
- When holding work in a chuck, grip as much of the material as possible. If thin flanged work is to be held, give support to the tool thrust by inserting a ring or collar between chuck body and work piece. The pressure on the jaws can be eased and so prevent straining of the chuck to avoid what is commonly known as 'Ball Mouth Jaws'.
- Do not grip irregular shaped material in a three-jaw chuck. Use a four-jaw chuck for rough material.
- Do not swing offset jobs on the faceplate without balancing by counterweight. A piece of shaped lead clamped to the face-plate opposite the offset material will give the necessary balance to most jobs. Swinging unbalanced work places an unnecessary load on bearings and causes ovality on work being turned.
- After your work has been clamped to faceplate, pull the machine round by hand and test tool and slide clearance to avoid damage by swinging bolts, etc.
- When roughing out heavy stock, use the tailstock centre for support. This helps the chuck's life of accuracy and takes away some of the load applied to spindle and bearings.
- When knurling, do not force knurling tool into work with too great a pressure as strain is placed upon feedscrew and nut. Use lubricating oil freely during knurling operation.
- Do not leave the key in your headstock chuck. Nasty accidents occur should the lathe be switched on accidentally.
- See that the spindle thrust is correctly adjusted. Any end float causes chatter.
- Always wipe spindle nose and chuck register faces clean before mounting chucks, faceplates, etc.
- When removing a chuck (or faceplate), do not 'yank' the chuck off with the headstock locked with the back-gear, but set the headstock for normal back-gear drive, and after placing a piece of hard wood on the lathe bed, pull the spindle round by means of the belt so that one jaw of the chuck or slot in the faceplate strikes the wood sharply. The most obstinate chuck is released in this way, and a great deal of the load is taken from the back-gear teeth.
- Always clean out the spindle taper before inserting centres.
- A small mark on the headstock centre with a corresponding mark on the front face of the spindle nose enables the position of location for trueness to be maintained.
- Do not forget that the headstock centre (live centre) must run true and should be turned in position when correction is necessary.
- Except for occasional oiling, the tailstock requires very little attention. It is, however, important that its original accuracy is maintained. The following points will assist in avoiding unnecessary tailstock troubles:—  
When turning between centres, see that the barrel is as far in the tailstock body as possible. This will give greater rigidity and lessen the load on the body bore when machining. When drilling, see that the drill starts in a truly centred hole as any swing on a fairly large drill causes unnecessary wear on the sliding barrel. When turning between centres, remember that the tailstock centre has the friction of the rotating work piece to withstand and must be kept lubricated; also that when work being turned becomes heated, it expands, giving an added pressure to the contact faces. Check your work freedom at periods during the turning operation, slightly slackening the tailstock pressure when necessary. Very little trouble should arise with 'burned up' centres if these points are watched. A hardened centre when it 'burns up' needs accurate regrinding, and often the hardened particles of steel become embedded in the work being turned, causing unlimited complications unless removed.
- When setting gear trains, do not mesh the change wheels too tightly.
- Always remember that your ML7 Lathe is a valuable Machine Tool, and no effort should be spared to maintain its quality and accuracy.