INSTRUCTION AND SPARE PARTS MANUAL

MASCOT COLCHESTER

8½" Centres

and

DOMINION COLCHESTER

17" Swing

All-Geared Head Lathes

2nd EDITION

THE COLCHESTER LATHE CO. LTD.
COLCHESTER · ESSEX · ENGLAND
Telephone No. - COLCHESTER 6351

Instruction and Spare Parts Manual

for

8½" Centre MASCOT

and

17" Swing DOMINION

ALL-GEARED HEAD LATHES

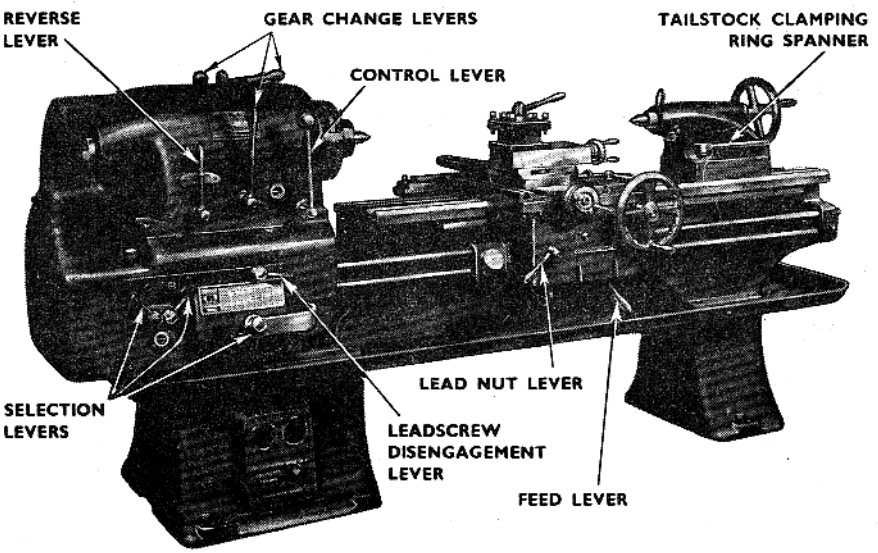
When ordering Spares it is essential to state Size, Style and Serial Number of Machine in addition to Part Number and Description.

Size 8½" Type MAM 10 Serial No. 5-36850

Purchased From: Jersey Machine Tools Ltd.
Channel Islands.

8½" MASCOT and 17" DOMINION

All-Geared Head Lathes



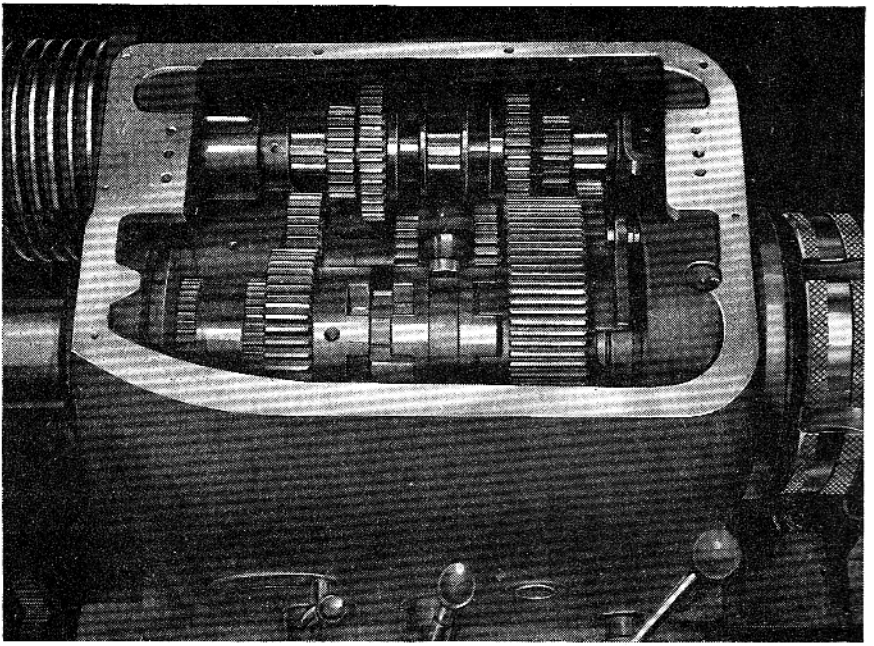
INTRODUCTION

The Colchester Machines are the result of almost half-a-century of concentration on the manufacture of lathes. The keynote of Colchester machines is efficiency combined with simplicity. Our lathes are to be found working in all corners of the world and while essentially precision tools intended for the production of accurate workpieces, their simple design, robust construction and simplified controls make them very suitable for tooling for production work. All castings are naturally aged for at least six months to avoid any possible future distortion. Jigs and special purpose machines are used extensively in our manufacturing operations to ensure interchangeability of components, and care is taken in all processes in all departments to ensure your satisfaction.

This Manual supplies specific information relative to the Colchester 8½" Mascot and Dominion 17" Swing Centre Lathes. A thorough understanding of the information contained in this handbook will aid in securing the most satisfactory operating results from your machine.

At the time of issue, this handbook is completely up-to-date. However, improvements in design are continuously being made and it is possible that some information included in this book may vary from the machine delivered to you. This indicates that design changes have been made so that the machine will better fulfil your needs, and we therefore reserve the right to alter the design or specification at any time without notice.

ONE HANDBOOK IS ISSUED FREE WITH EACH MACHINE
ADDITIONAL COPIES CAN BE SUPPLIED AT 5/- EACH



The Headstock

DO NOT CHANGE SPEED WHILE RUNNING

SPINDLE SPEEDS		PULLEY 590 R.P.M.			
LEVERS ON TOP					
LEVER AT FRONT		600	415	270	180
		125	87	56	37

OIL ALL BEARINGS REGULARLY THROUGH LUBRICATORS WITH SHELL TELLUS OIL 41

KEEP LEVEL OF OIL TO MARK ON SIGHT GLASS

THE COLCHESTER LATHE Co LTD ENGLAND

Speed Change Chart

Alternative Spindle Speeds:—25 to 410 r.p.m.

THE ALL-GEARED HEADSTOCK

The Headstock forms a totally enclosed oil bath and provides eight spindle speeds (as shown on the Speed Change Chart opposite) from an input drive pulley speed of 590 R.P.M. This is accomplished through two high tensile heat treated shafts, carried in phosphor bronze bearings, and carrying gears of similar quality and operated, for speed selection, by means of two hand levers on top and one in front of the Headstock. The mechanism is of simple and robust design and will be readily understood by reference to the Headstock illustration. The main spindle is precision finished, from a heat treated high tensile steel forging and is carried on the latest type anti-friction bearings.

The front end of the spindle is carried on Gamet Super High Precision low angle double row cylindrical taper roller bearings of exceptional accuracy, specially manufactured to our requirements; the rear end of the spindle being carried on a single row taper roller bearing of similar design.

Another hand lever on the front of the headstock permits the leadscrew and feedshaft direction of rotation to be reversed.

The red control lever on the front of the headstock controls the running of the machine through an air break starting switch and a mechanical brake. This starting switch incorporates a no-volt release. In the case of an electrical supply failure, the machine can only be re-started by moving the control lever to the off position and then re-starting in the normal way.

It is necessary from time to time to check that the no-volt release is working correctly. This can be done by switching the motor off from the control panel, moving the red control lever into the starting position and switching the motor on again. If the machine starts up the no-volt release is not working correctly and an adjustment should be made. This is easily accomplished by releasing the lock nut underneath the switch lever at the back of the machine and unscrewing the stud sufficiently to allow it to operate satisfactorily. Finally, tighten lock nut.

When this lever is moved in the direction of the tailstock the motor starts up, and is cut out when the lever is returned, to its upright and off position. Pressure applied to the lever in the reverse direction operates an expanding brake in the drive pulley which stops the spindle instantaneously. This arrangement gives very rapid and sensitive control of the machine.

To enable instantaneous braking to be applied, use is made of the American Long Taper Key Drive type spindle nose to L.2. Standard, and the hole through the spindle is $3\frac{1}{16}$" diameter (to pass 3" dia. bar).

ADJUSTMENTS

Spindle bearings are of such design and accuracy that they are correctly adjusted under cutting conditions before leaving our Works and therefore should give long service before any adjustment becomes necessary. The rear bearing is so designed that no adjustment is necessary, this being provided for by the spring loading of the bearing which gives constant pressure.

Should the removal of the main spindle or headstock shafts become necessary at any time, the following sequence of operations is recommended:

REMOVAL OF MAIN SPINDLE

1. Drain oil.
2. Remove end guard.
3. Remove top cover (Taking care not to damage gasket).
4. Remove six Cap head screws in rear bearing cover.
5. Remove rear bearing cover.
6. Remove grubscrew from collar on end of spindle.
7. Unscrew collar.
8. Remove six Cap head screws from front bearing.
9. Strike rear end of Spindle sharply with a wood or lead mallet or hammer.
10. Remove spindle complete with front bearing assembly, taking care not to damage gasket.
11. Remove main spindle gears, large clutch gear keep and back bearing inside race.
12. Reassemble in reverse order.

REMOVAL OF REAR END BEARINGS

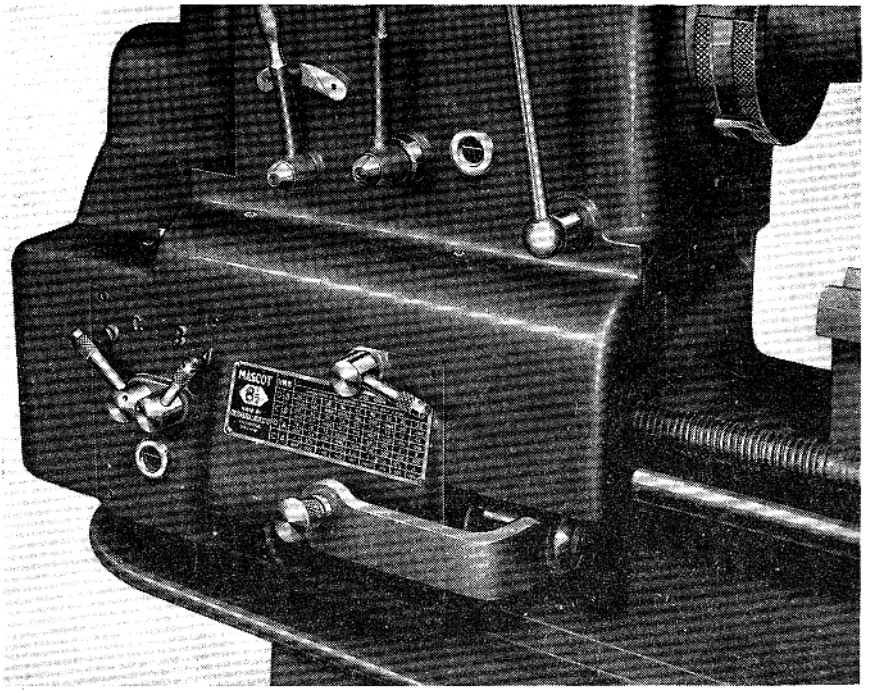
1. Remove six Cap screws holding inside bearing cover.
2. Remove cover.
3. Tap out Bearing with usual care and precautions against damage.

REMOVAL OF INTERMEDIATE SHAFT

1. Remove Bridge Piece by unscrewing four $\frac{3}{8}$" Countersunk screws.
2. Remove Grub Screw in Driving Shaft Collar and draw out shaft and pulley together.
3. Remove collar and gears.
4. Remove brake assembly.
5. Remove four Cap Head screws from flanged bearing and draw out bearing.
6. Remove grub screws in Intermediate Shaft gear.
7. Remove brass screw holding Intermediate Shaft bearing.
8. Insert Jacking Screw in Intermediate Shaft bearing at front end and withdraw. Next insert Jacking Screw in end of shaft and draw out.
9. Remove gears.

REMOVAL OF DRIVING SHAFT

As instructions 1, 2 and 3 for intermediate shaft.



The Quick Change Feed Box

MASCOT 8½"
MADE BY
COLCHESTER LATHE Co LTD
COLCHESTER
ENGLAND

LEVERS		ENGLISH-THREADS PER INCH					METRIC-PITCH IN M/M			
		SLIDING FEEDS IN THOUSANDTHS — SURFACING ½ SLIDING								
D	B	60	56	52	48	44	40	38	36	32
		·003 ·50	·0035	·0038	·0041	·0045	·005 ·75	·0052	·0055	·0062
C	B	30	28	26	24	22	20	19	18	16
		·006 1	·007	·0075	·008 1·25	·009	·010 1·5	·0103	·011	·0125
D	A	15	14	13	12	11	10	9½	9	8
		·013 2	·014	·015	·017 2·5	·018	·020 3	·021	·022	·025
C	A	7½	7	6½	6	5½	5	4¾	4½	4
		·026 4	·028	·030	·033 5	·036	·040 6	·041	·044	·050

English Screw Cutting Chart

DOMINION 17"
MADE BY
COLCHESTER LATHE Co LTD
COLCHESTER
ENGLAND

LEVERS		THREADS PER INCH								
		SLIDING FEEDS IN THOUSANDTHS — SURFACING ½ SLIDING								
D	B	56	52	48	46	44	40	38	36	32
		·0035	·0038	·0041	·0043	·0045	·005	·0052	·0055	·0062
C	B	28	26	24	23	22	20	19	18	16
		·007	·0075	·008	·0085	·009	·010	·0103	·011	·0125
D	A	14	13	12	11½	11	10	9½	9	8
		·014	·015	·017	·017	·018	·020	·021	·022	·025
C	A	7	6½	6	5¾	5½	5	4¾	4½	4
		·028	·030	·033	·035	·036	·040	·041	·044	050

Dominion Screw Cutting Chart

MASCOT QUICK CHANGE FEED BOX

The feed box forms a totally enclosed oil bath and provides 36 Whitworth thread pitches, 11 Metric pitches and 36 feeds (as shown on the Screw Cutting and Feed Charts). Changes are accomplished, without any wheel changes being necessary, through a train of heat treated gears carried on high tensile heat treated splined shafts.

The feed box, while simple, is very effective and robust and is controlled by means of three selection levers situated at the front of the box. A fourth lever provides for the selection of either English or metric trains of gears and controls the leadscrew disengagement.

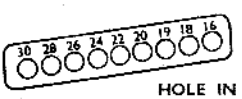
Should the removal of any part of the Feed Box become necessary, the dismantling procedure will be clear if the oil is drained, the tumbler arm removed and the front cover taken off, but in case it is necessary to take down the tumbler shaft the following sequence of operations is recommended.

REMOVAL OF TUMBLER SHAFT

1. Drain oil.
2. Remove Tumbler Arm plug.
3. Take out $\frac{1}{4}$" Grub screw.
4. Release grip of arm and remove.
5. Remove front cover.
6. Remove Tumbler Gear.
7. Remove circlip.
8. Remove three $\frac{3}{16}$" Cap screws in flanged bearing.
9. Slide shaft out in direction of tailstock.
10. Withdraw flanged bearing.
11. Remove tumbler bearing.

Formula to obtain Change Gears for special threads

Thread required to be cut $= \frac{3 \times Y}{14T} = \frac{\text{Drivers}}{\text{Driven}}$

X = 

HOLE IN FEED BOX

T = THREADS PER INCH TO BE CUT.

Y = 1 = LEVER AC.
2 = LEVER AD.
4 = LEVER BC.
8 = LEVER BD.

EXAMPLE: 21 threads required to be cut.

$$\frac{3 \times 28 \times 2}{14 \times 21} = \frac{4}{7} = \frac{24 \text{ Driver}}{42 \text{ Driven}}$$

DOMINION QUICK CHANGE FEED BOX

The feed box forms a totally enclosed oil bath and provides 36 thread pitches and 36 feeds (as shown on the Screw Cutting and Feed Charts). Changes are accomplished, without any wheel changes being necessary, through a train of heat treated gears carried on high tensile heat treated splined shafts running in phosphor bronze bearings.

The feed box, while simple, is very effective and robust, and is controlled by means of three selection levers at the front of the box. A fourth lever operates the leadscrew disengagement.

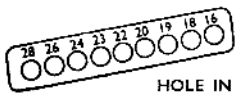
Change wheels for cutting Metric pitches are only furnished at extra cost.

Should the removal of any part of the feed box become necessary, the dismantling, procedure will be clear if the oil is drained, the tumbler arm removed and the front cover taken off, but in case it is necessary to take down the tumbler shaft the following sequence of operations is recommended:

Removal of Tumbler Shaft

1. Drain oil.
2. Remove Tumbler Arm plug.
3. Take out $\frac{1}{4}$" grub screw.
4. Release grip of arm and remove.
5. Remove front cover.
6. Remove tumbler gear.
7. Remove circlip.
8. Remove three $\frac{3}{16}$" Cap screws in flanged bearing.
9. Slide shaft out in direction of tailstock.
10. Withdraw flanged bearing.
11. Remove tumbler bearing.

FORMULA TO OBTAIN GEARS FOR SPECIAL THREADS

X = 

HOLE IN FEED BOX

T = THREADS PER INCH TO BE CUT.

Y = 1 = LEVER AC.
2 = LEVER AD.
4 = LEVER BC.
8 = LEVER BD.

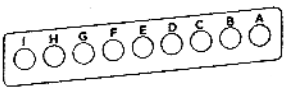
$$\text{Thread to be cut} = \frac{3 \times Y}{14\,T} - \frac{\text{Driver}}{\text{Driven}}$$

EXAMPLE

21 threads required to be cut

$$= \frac{3 \times 28 \times 2}{14 \times 21} = \frac{4}{7} = \frac{24\ \text{Driver}}{42\ \text{Driven}}$$

TABLE OF METRIC PITCHES

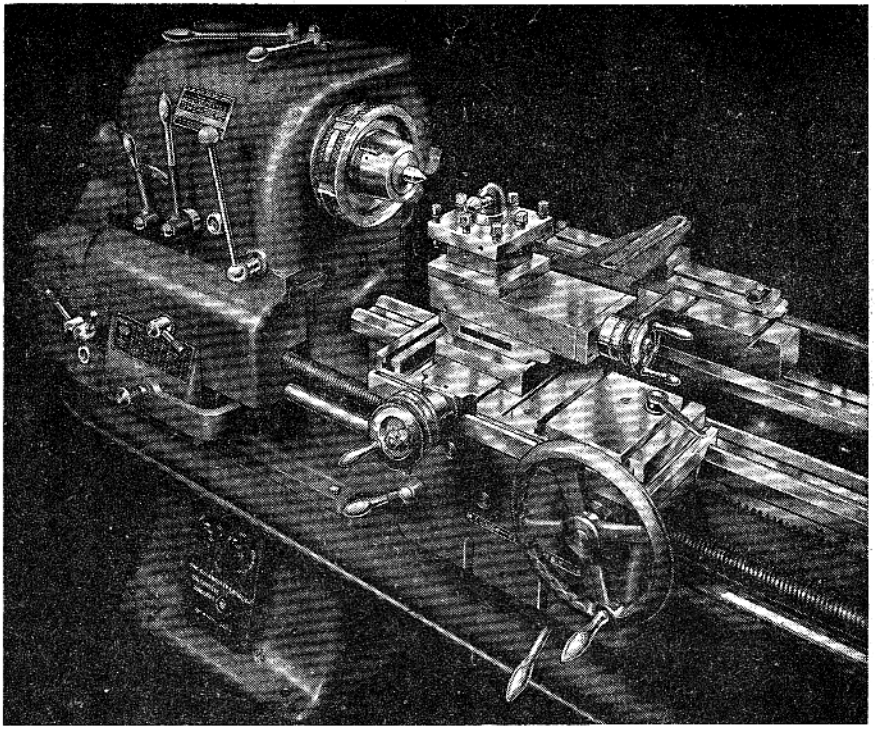


PITCH M/M	LEVER	LEVER	DRIVER	DRIVEN	DRIVER	DRIVEN	HOLE
·5	B	D	36	127	120	42	G
·6	"	"	36	"	"	"	D
·7	"	"	42	"	"	"	"
·75	"	"	36	"	"	"	A
·8	"	"	36	"	"	35	B
·9	B	C	27	"	"	42	D
1	"	"	36	"	"	"	G
1·25	"	"	30	"	"	"	A
1·5	"	"	36	"	"	"	"
1·75	"	"	42	"	"	"	"
2	A	D	36	"	"	"	G
2·5	"	"	30	"	"	"	A
3	"	"	36	"	"	"	"
3·5	"	"	42	"	"	"	"
4	A	C	36	"	"	"	G
4·5	"	"	27	"	"	"	A
5	"	"	30	"	"	"	"
5·5	"	"	33	"	"	"	"
6	"	"	36	"	"	"	"
7	"	"	42	"	"	"	"

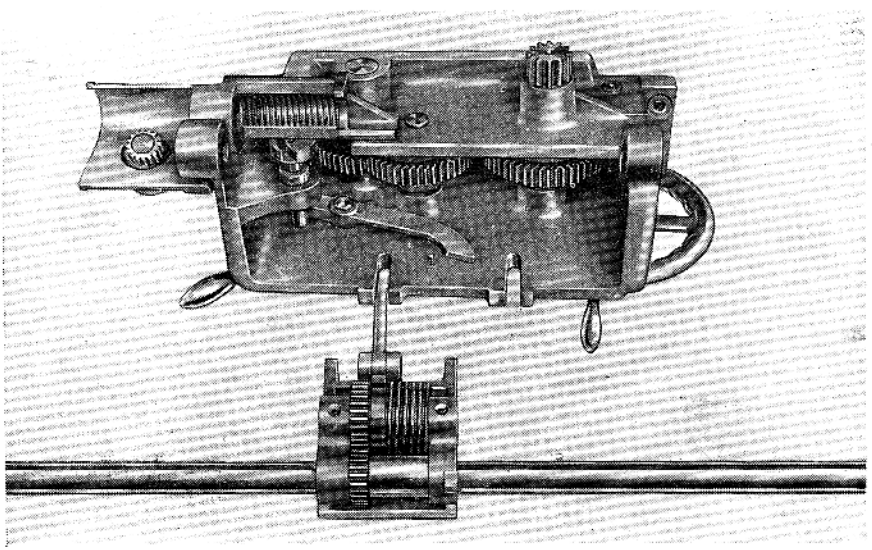
METRIC PITCHES

By employing special changewheels in the end train a range of metric threads may be obtained between .5 mm. and 7 mm. Pitch. The table opposite gives all the information required to enable the more usual pitches to be cut.

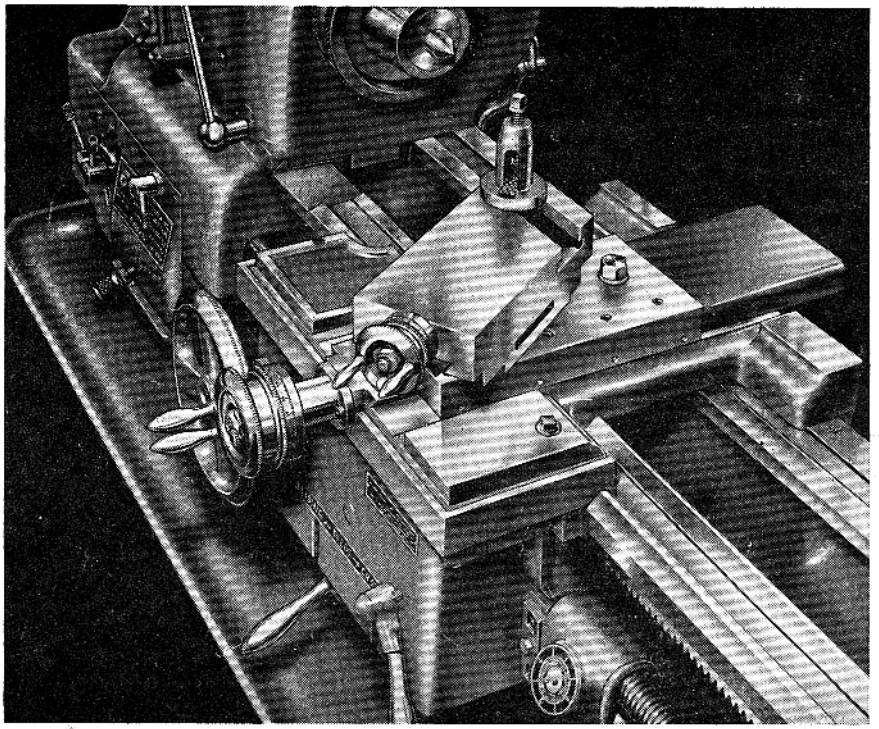
NOTE:—When cutting metric threads it is essential to follow the instructions given on page 11 under the heading SADDLE.



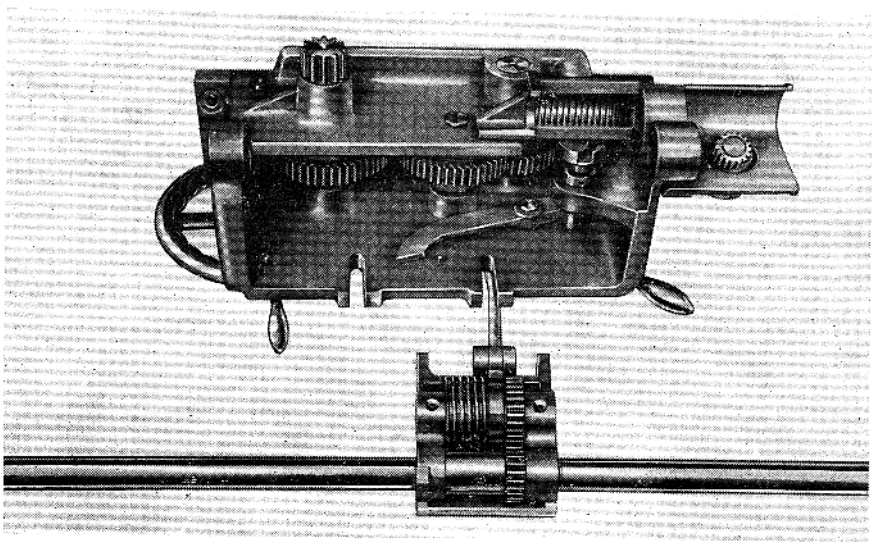
The Saddle



The Apron



Saddle



Apron

SADDLE

The Saddle, of adequate proportions, is mounted on vee and flat surfaces on the bed, is of the boring type on $8\frac{1}{2}''$ and American winged type on 17" lathes and fitted with a very robust compound slide.

The Saddle is secured to the bed by means of keeps in front and rear and can be locked on the bed at any position. All surfaces are precision machined. Large diameter micrometer dials reading in .001" are fitted to both slides and can be set to zero and clamped for easy operation. Operating screws and slides are covered in all positions. A triangular Tool Plate Clamp and an American pillar type toolpost is fitted as standard on the $8\frac{1}{2}''$ and 17" models respectively but special automatic indexing square turrets can be supplied at extra cost.

When the Colchester Coolant unit is ordered, the coolant supply pipe is bolted to the back of the carriage at the tailstock end, and moves along the bed with the carriage. The supply pipe is only furnished with the coolant unit.

The standard tool size for the MASCOT is $1\frac{1}{4}'' \times 1\frac{1}{4}''$ and for the DOMINION $\frac{5}{8}'' \times 1\frac{3}{8}''$.

The cross slide is radially graduated 180° a side for easy and accurate setting of the compound slide. A 16-tooth gear and dial indicator for screwcutting is fitted as standard, and is clearly visible from the natural operating position. The dial has 4 numbered divisions and 4 sub-divisions.

To cut an even number of threads such as 12 T.P.I. the leadscrew may be engaged at any division on the dial, and for an odd number of threads, such as 13 T.P.I., the leadscrew must only be engaged at numbered divisions. To cut fractional threads such as $11\frac{1}{2}$ T.P.I. the leadscrew must only be engaged at division 1 on the dial.

The dial indicator cannot be used for metric threads. For these the nut is closed on the leadscrew, and the machine reversed by means of a finger tip reversing switch, mounted through the main control lever on the headstock, after each cut and tool withdrawal, bringing the tool back to starting point. The nut remains engaged until the thread is completed. The Switch is only supplied as extra equipment.

APRON

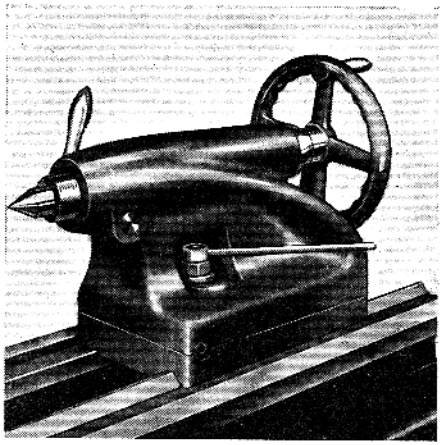
The apron is a double-walled casting accurately machined and all shafts are arranged to have two bearing points.

Feed and screwcutting controls are interlocked to prevent simultaneous engagement and longitudinal and cross feeds are engaged by a positive single lever control action.

Power for both longitudinal and cross feeds is taken from a separate shaft incorporating a simple slipping clutch arrangement at the gearbox end which effectively guards against possible damage through careless operation and is equally effective in taking care of the heaviest cuts.

The precision leadscrew (4T.P.I. ACME) is used for screw cutting only and the whole apron arrangement is effectively guarded to comply with Factory Safety regulations and requirements.

Direction operating instructions are clearly shown on the metal plates on the apron.



TAILSTOCK

The Tailstock is of rigid design with a large diameter spindle and screw, and is mounted on independent vee and flat surfaces on the bed. The hole in which the spindle slides is honed to very close limits of accuracy.

The spindle, bored No. 4 Morse Taper, is graduated in inches of travel and is locked in position by a hand lever.

Provision is made for the ejection of centres when the spindle is wound right back, and set screws are fitted to enable the tailstock to be set over for taper turning. A zero setting line simplifies resetting.

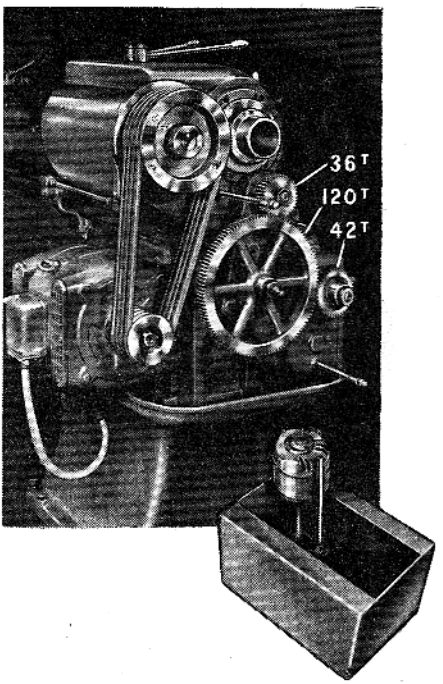
Rapid locking of the tailstock to the bed is by means of a detachable ring spanner.

THE MOTOR DRIVE

The motor drive is self-contained and to avoid all possibility of motor failure due to chips or coolant splash, the motor is carried at the rear of the headstock base below the chip tray.

The drive is taken to the main drive pulley on the headstock by five $\frac{1}{2}$" vee belts enclosed in a light alloy end guard.

The standard motor is 5 H.P. 2-Phase or 3-Phase, but D.C. and Single Phase motors are fitted to order at extra cost, the additional cost being dependent on the type of motor and starting equipment required. Provision for motor belt adjustment is provided.

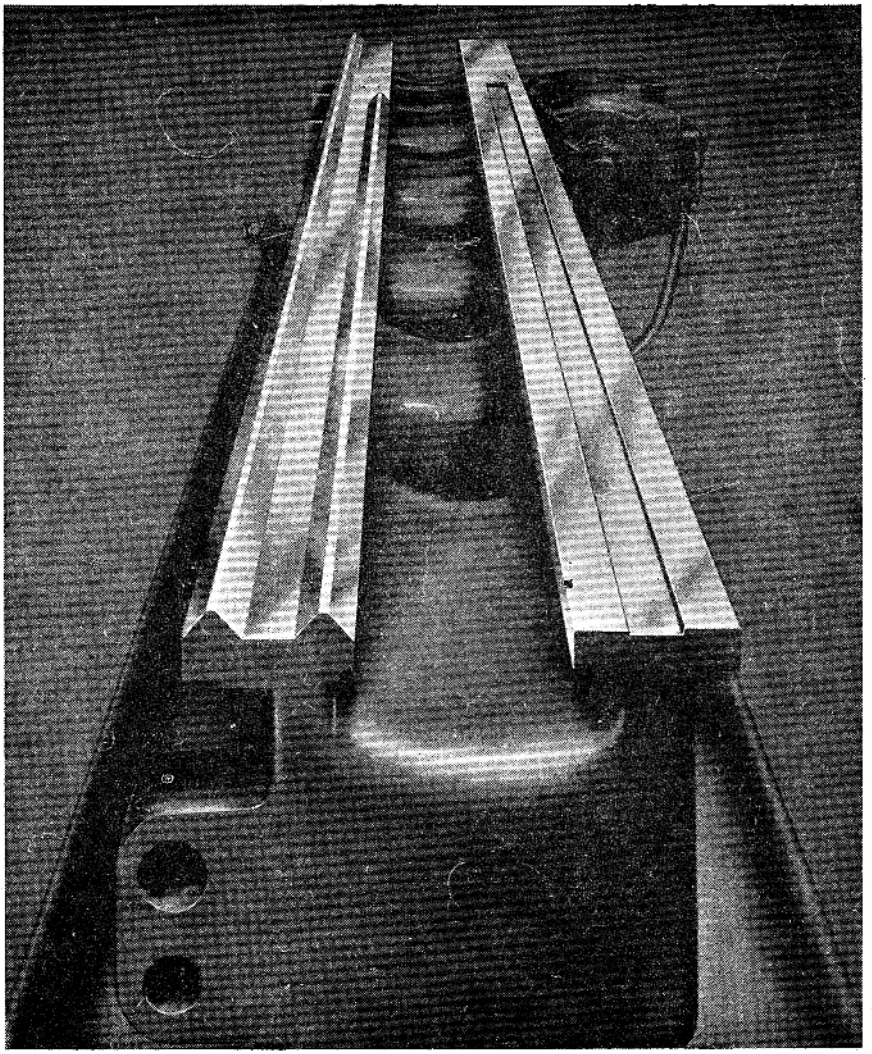


COOLANT UNIT

Coolant may be supplied from a central coolant source or by a Colchester Auxiliary Coolant Unit. This unit is furnished to order only and at extra cost. There is provision on the standard machine in the chip tray for a return of the coolant, through a filter gauze, to the supply source.

The Coolant piping supplied is fully universal, with telescopic piping for feeding the coolant in any position. Spring loaded glands are employed which require no adjustments. A patented ball type shut-off valve permits easy control of the volume of coolant. The whole unit is designed to eliminate the leakages which are usually associated with coolant systems.

The Colchester unit has a capacity of $5\frac{1}{2}$ gallons.



THE LATHE BED

The Bed is an exceptionally strong casting of the inverted vee type, with elliptical cross ribbing providing great rigidity.

All bed castings are rough machined and naturally aged before finish grinding of all working surfaces.

Once or twice a week the bed surfaces should be wiped with a rag soaked in paraffin to prevent oil stains, and then thoroughly covered with a good grade machine oil to prevent rust formation.

Never use air lines for cleaning the chips from the lathe bed. Their use causes the chips to lodge under sliding members and in openings around moving parts with possible damage to the machine. A strong air stream will also blow off the protecting oil film and cause rust formation.

On gap bed lathes the removal of the gap block is an easy matter. Simply release and take our four Allen type screws, and the block is then free to be removed. No dowels are fitted.

To replace Gap. *Thoroughly clean both block and gap Location.* This is most important. Replace block and locate screws. Bring saddle up to give rough alignment and tighten screws down lightly.

If the location faces are clean the block can then be re-aligned with a few taps in the required direction with a hide or non-ferrous hammer.

STANDARD EQUIPMENT

One	16″ Direct Mounting Face Plate.	Two	Centres (one hard, one soft).
One	Direct Mounting Catch Plate.	One	Centre Bush.
One	Travelling Steady Rest.	Five	Keys (Hollow Screws).
Two	Spanners.	One	"C" Key (Spindle Nose Collar).

EXTRA EQUIPMENT

The list below specifies the items of equipment which can be furnished at extra cost. Additional items are included in this list from time to time and we are available to advise you concerning your needs at any time.

Low volt lighting equipment.
Auxiliary coolant supply unit.
Automatic indexing square toolpost.
Additional direct mounting chucks.
Additional sets of hard or soft jaws.
Additional solid centres.
Backplate for special fixtures.
Drill chucks.
Revolving centres.
Stationary steady.
Spindle nose collet chuck attachment (2″ max. capacity).
Taper turning attachment.
Large face plate (Mascot only).
Electrical reversing switch.

Automatic Indexing Square Toolpost

This is a very strong and rigid toolpost manufactured from a heat treated steel forging. It can be hand indexed into the operating position, and is arranged to carry four tools or toolholders having a height up to $1\frac{1}{4}$″.

The hand lever moved in an anti-clockwise direction automatically releases the locating plunger. This enables the turret to be swung to the next indexing position by the clockwise movement of the top handle. A further slight movement of this handle after the turret has reached the indexed position effectively locks the turret block to the topslide. It is also possible to swing the turret block into any position without using the indexing mechanism.

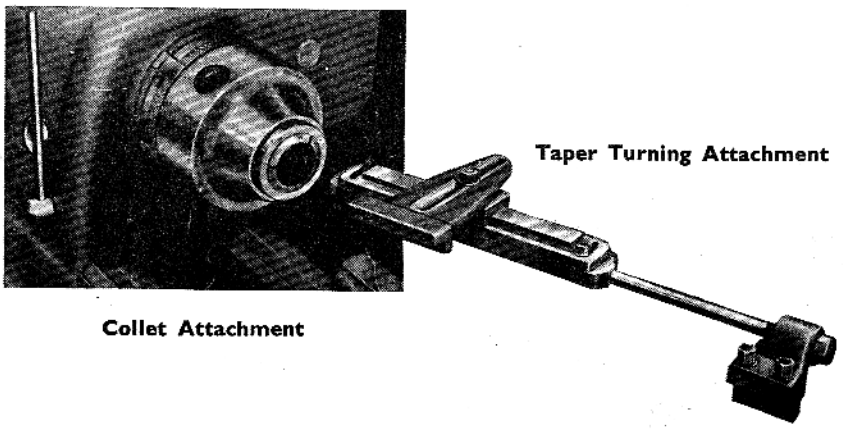
The retracting plunger method of indexing enables the turret block to remain on its bottom face thereby effectively preventing chips from lodging on the location face.

These toolposts are accurately bedded onto a special turret slide which can be supplied in place of, or as an extra, to the standard slide.

Backplates

It may be desired to accommodate special fixtures on the Colchester Lathes for turning quantities of parts which can only be

Collet Attachment



Taper Turning Attachment

held in a fixture. Backplates are then necessary and can be supplied made from high grade "Meehanite" castings and machined for direct mounting on the spindle nose of the machine.

Stationary Steady

This attachment is of rigid design and easily opened and set. The maximum bar capacity is 6″ dia. and the inserts are of plastic composition and readily replaced.

Spindle Nose Collet Chuck Attachment

This attachment is supplied at extra cost with or without a backplate for direct mounting on the spindle nose of the machine. Its capacity is 2″ maximum and any size collet can be supplied up to this diameter.

Chucks

The precision chucks fitted to Colchester Lathes are made from high grade "Meehanite" castings with heat treated nickel-chrome steel scrolls and nickel steel pinions (3-jaw self-centring), and heat treated tough alloy steel jaw operating screws (4-jaw independent), and are all arranged for direct mounting on the lathe spindle nose without the use of backplates. Jaws are dealt with under a separate heading.

When ordering spares it is important to specify the chuck number and size on your order together with the serial number of the machine.

Additional Sets of Hard or Soft Jaws

The jaws are made from a special grade of case-hardened steel, accurately machined on all surfaces and all hard jaws are heat treated and ground on bearing and gripping surfaces. When ordering it is important to specify the chuck number and size on your order together with the serial number of the machine.

Taper Turning Attachment

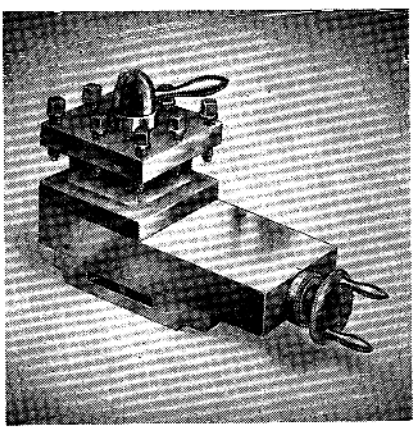
The attachment offers an effective means of producing tapers up to 9° in each direction. It is of simple design, and graduated in both degrees of arc and taper per foot. The length of taper which can be dealt with at one setting is 12″.

To operate the attachment, remove fixing screw from cross slide nut and fix in taper turner slide collar. Finally fix and tighten anchor bracket into required position.

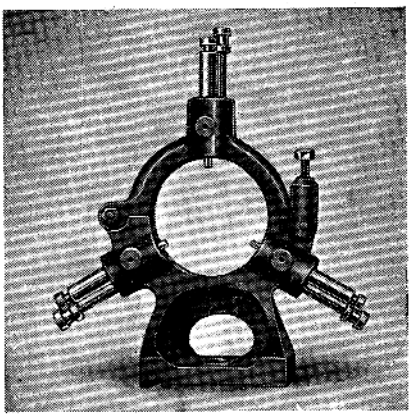
Care must be taken to avoid winding the cross slide nut along the traverse screw when the fixing screw has been removed as it might get into a position where movement of the taper slide can foul against it.

Always check that there is no interference by winding the carriage by hand the full length of the taper turning slide.

To revert to normal cross-slide work, remove fixing screw from taper turner slide collar and return to cross slide nut. Finally remove anchor bracket.



Square Toolpost



Stationary Steady

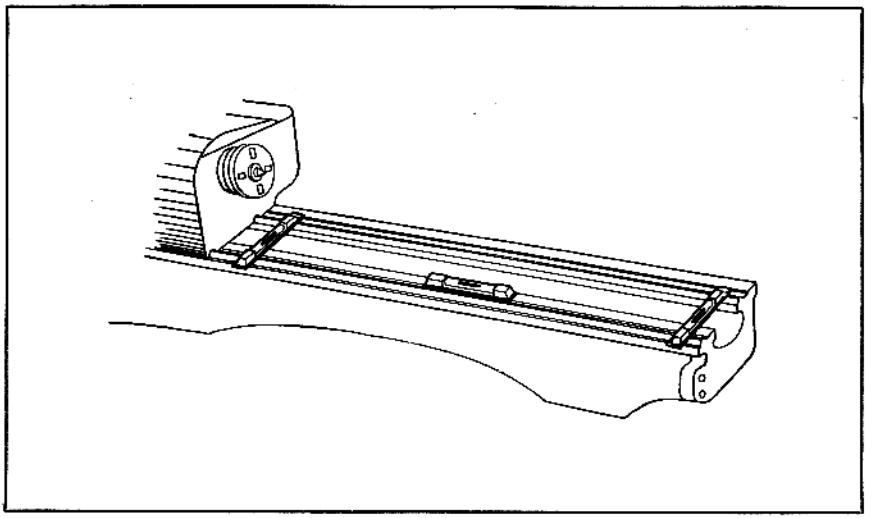
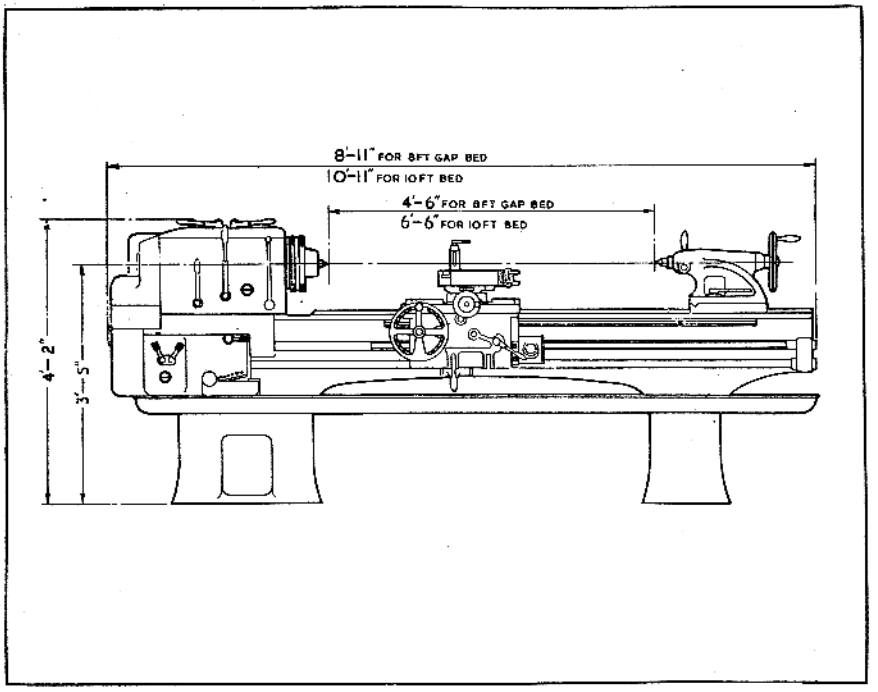


Diagram illustrating method of Levelling



Main Dimensions

INSTALLATION

Installation and Location

To obtain the full accuracy which has been built into the Colchester Lathe, it is essential that it should be placed on a solid level foundation which is free from vibration.

The best practice is to place the machine on a reinforced concrete base. A wooden floor is not recommended because the swelling and shrinking of the wood, due to atmospheric conditions, causes distortion of the alignment of the machine.

If a wooden floor site cannot be avoided, a section of flooring seven feet long and three feet wide should be removed, and a concrete base built up to the wooden floor level. Holding down bolts should be inserted in this base at proper intervals to fit the drilled holes in the machine legs.

If setting the machine above ground floor level, or on a balcony, cannot be avoided, a reinforced concrete floor is necessary to obtain best results and it is recommended that the Headstock be set as close to supporting walls and pillars as possible.

The machine weighs about 33 cwt. and proper equipment for handling this weight should be available.

After your machine has been unloaded, it should be left on its shipping skids, while it is moved to its location in the machine shop. In certain cases an eye-bolt is supplied ready fixed on the bed of the machine, and this should then be used for lifting purposes.

When the eye-bolt is not supplied, it is recommended that the machine is lifted by means of an adequately strong rope sling inserted through the bed openings. The machine should never be lifted by means of a sling around the outside of the lathe bed, otherwise the lead screw and feed shaft may be distorted.

Cleaning

Before moving any of the slides of your lathe, all machined surfaces should be thoroughly washed with paraffin to clean off the slushing compound used to protect these surfaces, together with any dust or dirt that may have accumulated in transit. This operation is very important as it prevents dirt from working under the sliding members and avoids subsequent undue wear. Care must be taken to ensure that the paraffin is not allowed to remain on the slides and all surfaces must be thoroughly covered with a good grade of machine oil to prevent the formation of rust.

After the machine has been thoroughly cleaned, surfaces lubricated and installed on its foundation, it is ready for levelling and wiring.

Technical Department

Our Technical Department is at your disposal, and always pleased to discuss your particular problem. Our aim is to ensure maximum satisfaction with your Colchester Lathe.

Chuck Mounting

By the use of the American Long Taper Key Drive spindle nose, the danger of chucks and other work holding fixtures becoming loose whilst rotating has been eliminated, but care must be taken to ensure that chucks, etc., are driven home firmly by means of the special key provided with the standard equipment. Both chuck and spindle tapers must be thoroughly cleaned before mounting. It is most important to avoid damaging any part of the spindle nose or chuck taper, as burrs will prevent the chuck being fully tightened.

Levelling

Levelling screws are supplied for both headstock base and rear leg. By adjustment of the headstock and rear leg levelling screws the proper transverse level of the machine can be quickly obtained.

The machine is then levelled longitudinally along the bed at several points, and the adjustment of the headstock or rear leg levelling screws simultaneously quickly gives alignment to the bed.

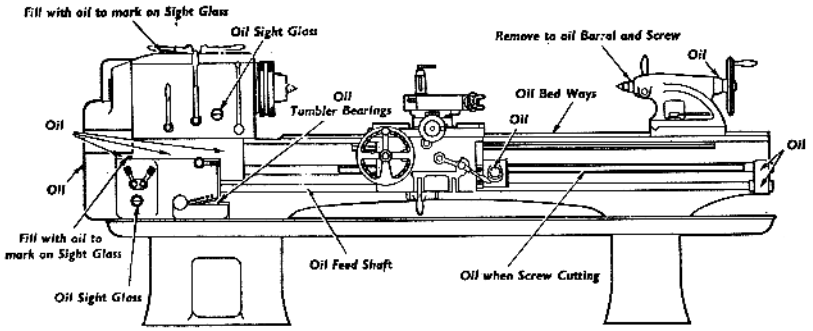
The holding down bolts should now be secured and another complete check made to ensure that no distortion has taken place. If this levelling has been carefully done with a suitable precision level, the machine will now be ready for use after electrical wiring has been completed.

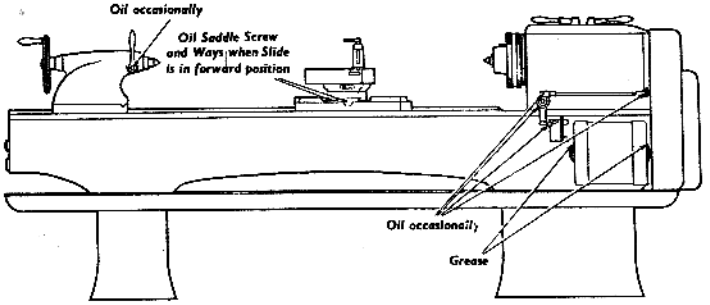
Turning Tests

The levelling procedure will put the machine into accurate alignment for all normal work, but sometimes turning tests are taken to check alignment and to establish a greater degree of accuracy when the machine is to be employed on Toolroom work.

These turning tests must be taken with keen tools taking a very light cut.

At our plant these tests are taken on two





The above diagrams show Lubrication Points requiring regular attention

discs held 12" apart in a chuck and as shown in sketch. A very light cut is taken on Disc A and B. Micrometer readings of the two discs should be the same. Similarly a bar can equally well be used for this test.

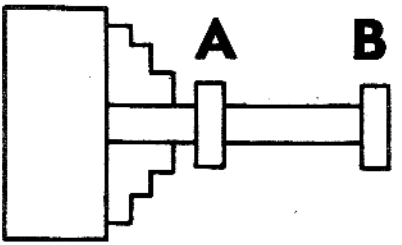


Diagram showing Turning Tests

LUBRICATION

The accuracy and very life of the machine depend on correct lubrication.

The chart on the opposite page provides information regarding the points which require frequent attention, and it cannot be too strongly stressed to the operator that *daily* attention is necessary to ensure efficient functioning of the machine.

When a machine leaves our plant, the Headstock and Feedbox are filled to the proper oil gauge level with the recommended lubricant, Shell Tellus oil 41, a hydraulic type of lubricant conforming to the following specification:

Gravity 60°F.	.880	
Flash Point Closed	420°F	
Pour Point	—10°F	
Viscosity Red. No. 1 ..	70°	1300 Sec.
" " " ..	140°	165 "
" " " ..	200°	62 "

and containing inhibitors against oxidation, frothing, and corrosion.

Always stop the machine when checking the oil levels to give the oil an opportunity to settle so that a true reading may be taken. If this is not done overfilling may take place resulting in excessive heat and waste of oil by leakage.

Oil levels should be checked weekly.

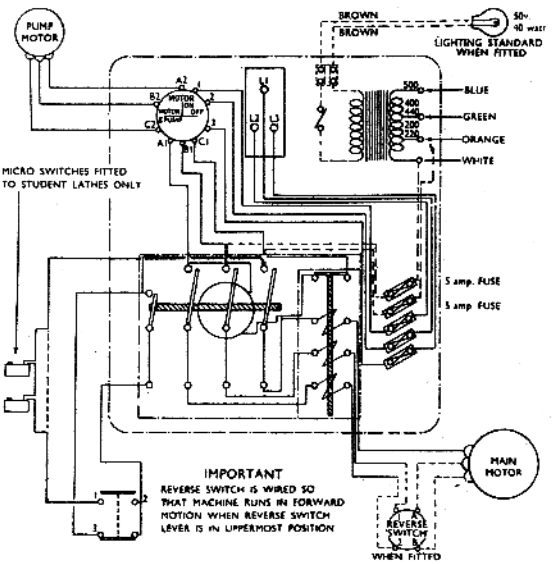
Thirty days after the machine goes into operation the headstock and gearbox should be drained, flushed with clean flushing oil and refilled with the recommended oil to the proper levels.

The motor bearings should be checked periodically to see that they are packed with grease of the grade recommended by the manufacturer of the motor on your machine. The coolant pump motor bearings should be checked periodically to see that they are packed with a water repellant grease.

WIRING TO POWER SUPPLY

The wiring should be done by a competent electrician in accordance with the standard diagram provided. The wiring should be of a permanent character, being enclosed in properly supported conduits and complying with all safety regulations and requirements.

It is essential than an efficient means of earthing the machine should be provided.



Wiring Diagram

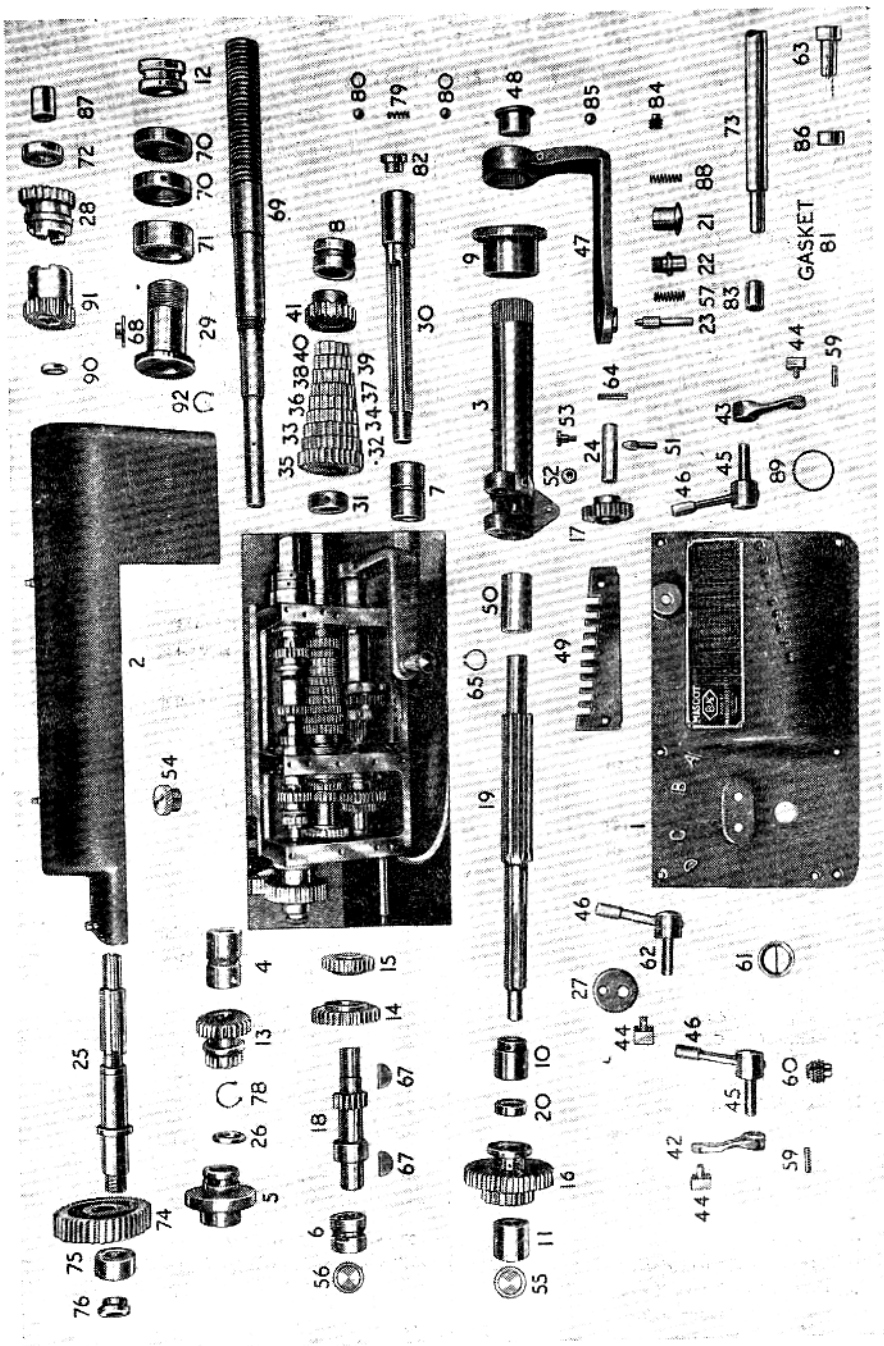
The Headstock

SPARE PARTS

HEADSTOCK

No.	Name of Part
1	Headstock
2	,, Cover
3	Front Bearing Outside Cover
4	Front Bearing Inside Cover
5	Back Bearing Outside Cover
6	Back Bearing Inside Cover
7	Inside Screwed Collar
8	Spindle
9	Spindle Clutch
10	Front Bearing Peg
11	Large Clutch Gear 104T/10P
12	Small Clutch Gear 55T/8P
13	Screwed Collar on end of Spindle
14	Reverse Gear 50T/10P
15	Back Bearing Spring thrust ring
16	Large Clutch Gear Keep
17	Large Clutch Gear Keep Screw
18	Spindle Clutch Shifter
19	Spindle Clutch Shifter Pads (2)
20	Spindle Clutch Shifter Shaft
21	Spindle Clutch Shifter Shaft Collar
22	Spindle Clutch Shifter Handle
23	Spindle Clutch Shifter Shaft Collar (back)
24	Driving Shaft
25	Driving Shaft Gear 32T & 19T
26	,, ,, ,, 25T & 38T
27	Driving Shaft Collar
28	Second Shaft 16T/10P
29	,, ,, Gear 41T/8P
30	,, ,, ,, 34T
31	,, ,, ,, 28T
32	,, ,, ,, 47T/8P
33	,, ,, Bush
34	Backshaft Gear Shifter Washer
35	GearShifter for Backshaft
36	Gear Shifter Lever (2)
37	Backshaft Gear Shifting Handle
38	Gear Shifter Plate
39	Locking Disc
40	,, ,, Stud (2)
41	Locking Piece
42	Locking Disc Plunger (2)
43	Locking Disc Plunger Spring
44	Domed Washer for Shifting Handles
45	Locking Disc Stud ½" Hex Nut
46	Reverse Shaft
47	Reverse Shaft Gear 50T/10P
48	,, ,, Bush
49	,, ,, Collar
50	Reverse Idler Gear Circlip
51	,, ,, ,, 38T/10P
52	,, ,, ,, Shaft
53	,, ,, ,, Bush
54	,, ,, ,, Washer
55	Gear Shifting Shaft for Reverse
56	Gear Shifting Lever
57	,, ,, ,, Pad
58	Reverse Handle
59	Face Plate 16" dia.
60	Catch Plate
61	Spindle Nose Draw Nut
62	,, ,, ,, Key
63	,, ,, Key
64	Centre
65	Centre Bush
66	Back Bearing Cover Gasket
67	Front Bearing Cover Gasket
68	Driving Shaft Bush
69	Domed Washer for Reverse Handle
70	Filler Plug
71	Oil Sight
72	Front Bearing
73	Back Bearing
74	,, ,, Spring
75	Switch Lever
76	Reverse Switch Link
77	,, ,, Shaft
78	,, ,, Lever Collar
79	,, ,, Handle Stem
80	Change Gears 36T/10P
81	,, ,, 120T/10P
82	,, ,, Sleeve
83	,, ,, ,, Stud
84	,, ,, ,, Nut (3)
85	Change Gear Spacer Collar (2)
86	Change Gear Sleeve Stud Nut
87	Swing Frame
88	Change Wheel Sleeve Stud Washer
89	Oiler for Change Wheel
90	Oiler Nut for Change Wheel Stud
91	Driving Pulley
92	Brake Shoes
93	Expanding Lever
94	Brake Ring Spring
95	Brake Shoe Fixing Stud

When ordering spares please give Serial No. of machine, name of unit and Part No.



MASCOT Quick Change Feed Box

SPARE PARTS

HEADSTOCK—*continued*

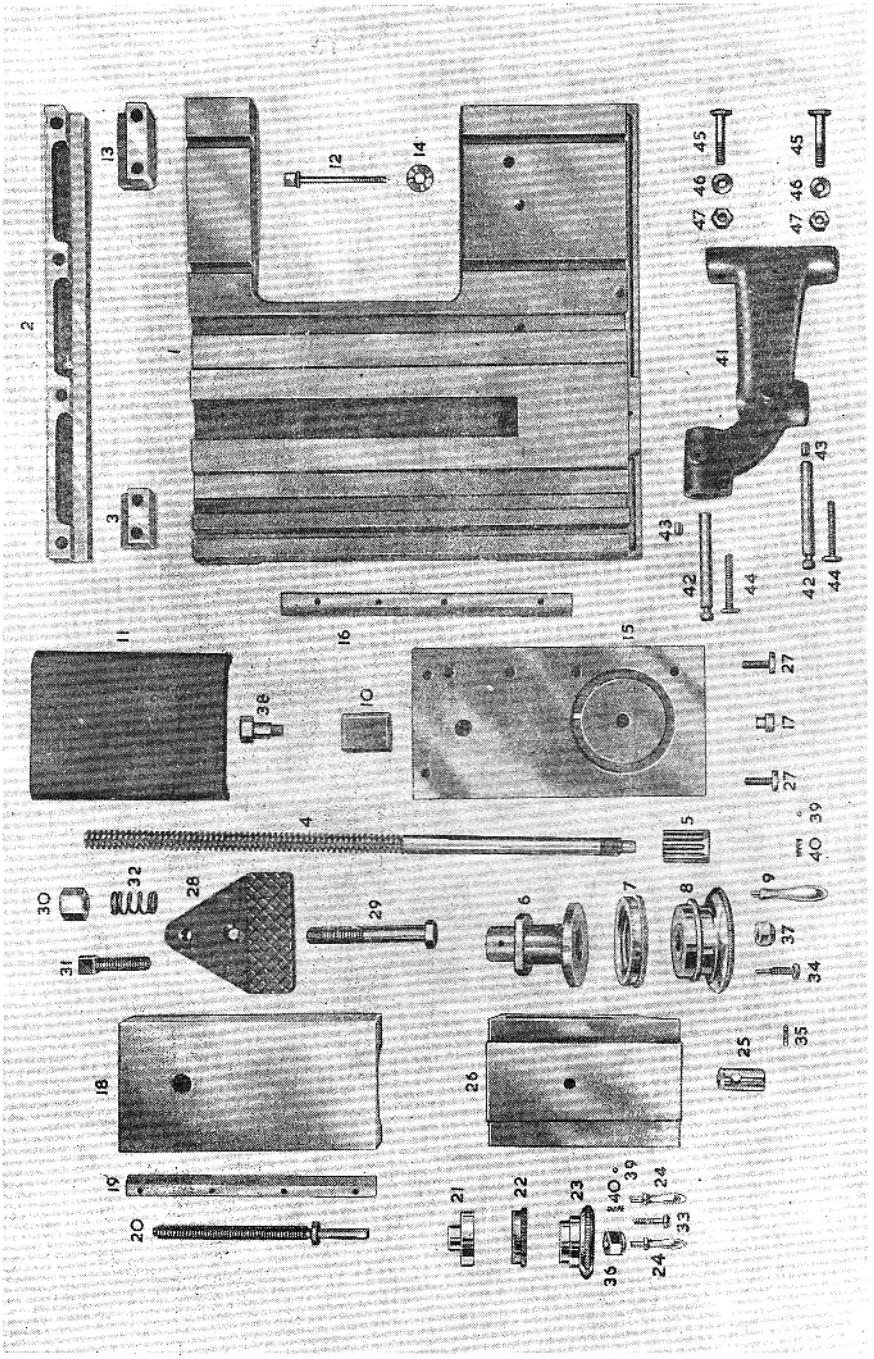
No.	Name of Part
96	Flanged Bearing
97	Brake Crank Lever
98	Stud for Link
99	Pulley Retaining Washer
100	Collar on Operating Lever
101	Flanged Bearing Bushes
102	Brake Operating Link
103	Operating Handle Stem
104	„ „ Shaft
105	Switch Lever
106	Adjusting Rod
107	„ Knuckle (RH)
108	„ „ (LH)
109	Washer on Driving Shaft
110	Operating Shaft Spring
111	Driving Shaft Bearing 'O' Ring
112	Domed Washer on Clutch Shifting Shaft
113	2nd Shaft Bush
114	Reverse Shaft Oil Seal
115	Driving Shaft Oil Seal
116	Cam Ring
117	Reverse Switch
118	„ „ Bracket
119	„ „ Cover
120	Operating Shaft Spring Bush
121	Clutch Shifting Shaft Handle
122	Electric Switch
	Cam Ring Fixing Screws
	Drain Plug ⅜" Gas
	Motor Pulley Slide Rails
	Motor Fixing Bolts
	Motor Stop Piece
	Fixing Screw for 2nd Shaft
	Brass Bush
	Headstock Set-over Screws
	Outside Front Bearing Cover Screws
	Outside Back Bearing Cover Screws
	Inside Back Bearing Cover Screws
	Reverse Handle Leather Washer
	Clutch Handle Leather Washer
	Spindle Reverse Gear Key
	2nd Shaft Key No. D. Woodruff
	Driving Shaft Key No. 21 Woodruff
	Clutch Shifting Shaft Key No. 15 Woodruff

No.	Name of Part
	Nut for Clutch Gear Keep Stud
	Head Cover Fixing Screws ¼" x 2" Cap Head
	Head Cover Fixing Screws ¼" x 1¼" Cap Head
	Spindle End Collar Screw
	Spindle Inside Collar Screw
	2nd Shaft Bush Plug Screw
	2nd Shaft Gear Screw
	Reverse Shifting Shaft Domed Washer Screw
	Clutch Shifting Shaft Domed Washer Screw
	Reverse Shaft Screws
	Reverse Shaft Nut
	Reverse Shaft Nut Washer
	Backshaft Gear Shifter Plate
	Driving Shaft Collar Screw
	Head Bolting Down Screws ¼" x 1¼" Cap Head
	Head Bolting Down Screws ⅜" × 1¾" Cap Head
	Locking Disc Pins
	Backshaft Lever Domed Washer Screws
	Spindle Nose Key Screws
	Pads for Collar Locking Screws Brass
	Reverse Bush Screws
	Reverse Shaft Collar Screw
	Spindle Clutch Shifting Shaft Nut
	Spindle Clutch Shifting Shaft Washer
	Reverse Lever Ball ¼"
	Reverse Lever Spring
	Swing Frame Fixing Stud Nut
	Clutch Bearing Screws
	Clutch Adjusting Rod Nut
	Split Pins for Knuckles
	Switch Lever Pin
	Switch Lever Screw
	Switch Box Screws
	Motor Rail Fixing Screws
	Stop Piece Fixing Screws
	Motor Adjusting Screws
	Motor Fixing Bolt Nuts
	Motor Fixing Bolt Washers
	Belt Guard Plate Screw
	Switch Box Bracket Screws

MASCOT QUICK CHANGE FEED BOX

1	Feed Box Cover
2	Feed Box Top Cover
3	Feed Box Tumbler Bearing
4	Driving Shaft Bush 2¾" long
5	Driving Shaft Bush
6	Inter Shaft Bush 1 5/16" long
7	Cone Shaft Bush 2 11/16" long
8	„ „ „ 1⅜" long
9	Tumbler Bearing Bush
10	Tumbler Shaft Bush 1⅞" long
11	Tumbler Shaft Bush 1 11/16" long
12	Lead Screw Bush
13	Driving Shaft Gear 16T 24T/10P
14	Inter Shaft Gear 32T/10P
15	Inter Shaft Gear 24T/10P
16	Tumbler Shaft Gear 24T 42T/10P

When ordering spares please give Serial No. of machine, name of unit and Part No.



MASCOT Saddle

SPARE PARTS

MASCOT QUICK CHANGE FEED BOX—*continued*

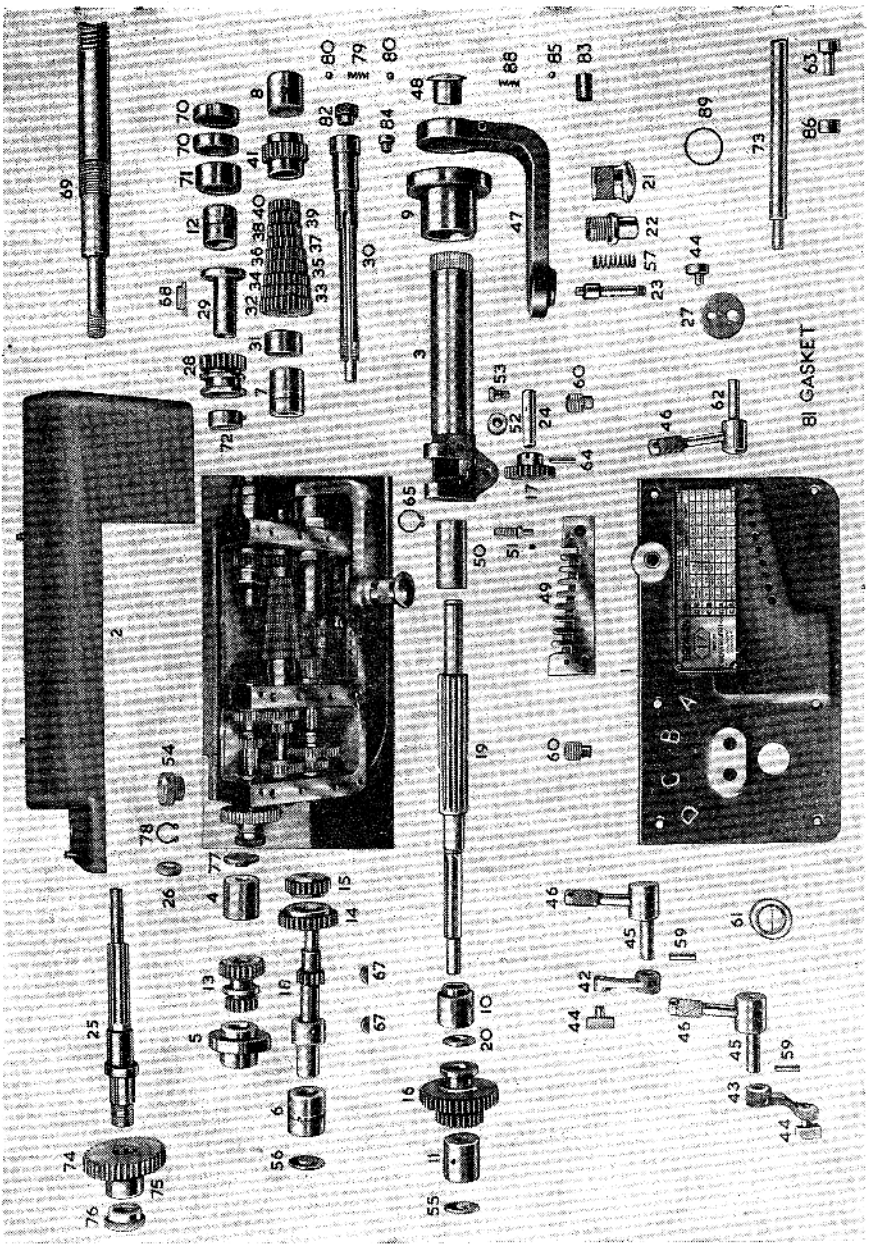
No.	Name of Part
17	Tumbler Gear 24T/10P
18	Inter Shaft 14T/10P
19	Tumbler Shaft
20	,, ,, Collar
21	,, Handle
22	,, ,, Socket
23	,, ,, Plunger
24	,, Gear Shaft
25	Driving Shaft
26	Driving Shaft Collar
27	Leadscrew Gear Lever
28	,, ,, 24T/10P
29	,, Thrust Sleeve
30	Cone Gear Shaft
31	,, ,, ,, Collar
32	,, ,, 28T/10P
33	,, ,, 26T/10P
34	,, ,, 24T/10P
35	,, ,, 30T/10P
36	,, ,, 22T/10P
37	,, ,, 20T/10P
38	,, ,, 19T/10P
39	,, ,, 18T/10P
40	,, ,, 16T/10P
41	,, ,, Pinion 24T/10P
42 & 43	Gear Shifting Levers
44	,, ,, Pads
45	,, ,, Shaft
46	,, ,, Shaft Handle
47	Tumbler Shifting Arm
48	Plug for Tumbler Bearing
49	Tumbler for Location Strip
50	Bush for Tumbler Shaft
51	Tumbler Locating Pin
52	Tumbler Roller
53	Pin for Tumbler Roller
54	Filler Plug
55	Plug for Tumbler Shaft Bush
56	Plug for Inter Shaft Bush
57	Tumbler Handle Spring
59	Gear Shifting Lever Pins $\frac{3}{16}$" x 1$\frac{1}{4}$" Mills
60	Drain Plug
61	Oil Sight
62	Leadscrew Gear Shifting Shaft
63	Feed Shaft Bearing Bush
64	Tumbler Gear Pin $\frac{3}{16}$" x 1$\frac{1}{3}$"
65	Tumbler Shaft Circlip (External)
67	Keys for Inter Shaft No. 9 Woodruff
68	Leadscrew Thrust Sleeve Key
69	Leadscrew 8 ft.
69	,, 10 ft.
70	Leadscrew Locknuts
71	,, Plain Collar
72	,, Screwed Collar
73	Feed Shaft 8ft.
73	,, ,, 10 ft.
74	Change Wheel 42T/10P

No.	Name of Part
75	Spacer Collar on Driving Shaft
76	Knurled Nut on Driving Shaft
78	Driving Shaft Circlip (External)
79	Spring (Large)
80	$\frac{1}{8}$" Balls
81	Gasket
82	Bush for Slipping Clutch
83	Slipping Clutch Bearing Bush
84	Peg for Spring
85	$\frac{1}{8}$" Ball
86	Feed Shaft Collar
87	Leadscrew Metric Gear Bush
88	Spring (Small)
89	Oil Ring for Tumbler Shaft Bearing 2$\frac{1}{8}$" bore
90	Metric Gear Washer
91	Leadscrew Metric Gear 22T/10P
92	Leadscrew Metric Gear Circlip
	Gear Shifting Shaft Springs
	Gear Shifting Shaft Balls $\frac{1}{4}$"
	Locating Pin Nut $\frac{3}{8}$" (Hex.)
	Leadscrew Gear Lever Pin $\frac{3}{16}$" x 1$\frac{3}{8}$" Mills
	Leadscrew Hand Lever Grub Screw $\frac{5}{16}$" x $\frac{7}{16}$"
	Top Cover Screws ($\frac{3}{16}$"x 2$\frac{1}{4}$") ($\frac{5}{16}$" x 1$\frac{1}{4}$") Cap Hd.
	Front Cover Screws $\frac{3}{8}$" x 1" Cap Hd.
	Front Cover Dowel Pin $\frac{3}{8}$" x 1$\frac{1}{4}$"
	Tumbler Bearing Bush Screws $\frac{3}{16}$" x $\frac{3}{8}$" Cap Hd.
	Tumbler Arm Screw $\frac{3}{8}$" x 1$\frac{1}{2}$" Cap Hd.
	Feed Box Bush Locating Screws $\frac{5}{16}$" x $\frac{3}{4}$" Grub Sc.
	Leadscrew End Collar Grub Screw $\frac{1}{4}$" x $\frac{3}{8}$"
	Locating Strip Fixing Screw $\frac{3}{8}$" x 1" Cap Hd.
	End Plug Grub Screw $\frac{5}{16}$" x $\frac{7}{16}$"
	Feed Shaft Collar and Bush Screw $\frac{5}{16}$"x $\frac{1}{4}$" Grub Sc.
	Inter Shaft Gear Grub Screw $\frac{3}{16}$" x $\frac{3}{8}$"
	Tumbler Handle Pin $\frac{5}{32}$" x 1$\frac{1}{8}$" Silver Steel
	Cone Shaft Collar Grub Screw $\frac{5}{16}$" x $\frac{3}{8}$"
	Locating Strip Adjusting Screws $\frac{5}{16}$" x $\frac{3}{4}$" Grub Sc.
	Locating Strip Locking Screw $\frac{3}{16}$" x $\frac{3}{16}$" Grub Sc.
	Gear Shifting Hand Lever Grub Screws $\frac{5}{16}$" x $\frac{7}{16}$"
	Cone Shaft Gear Key No. 15 Woodruff

MASCOT SADDLE

1	Saddle
2	,, Strip (Back)
3	,, ,, (Front)
4	,, Screw
5	,, ,, Pinion 12T/10P
6	,, ,, Keep
7	,, ,, Index Ring
8	,, ,, Handwheel
9	Saddle Screw Handwheel Handle
10	Saddle Screw Nut
11	,, ,, Guard
12	,, Locking Screw
13	,, Locking Strip
14	Washer for Saddle Locking Bolt
15	Bottom Slide

When ordering spares please give Serial No. of machine, name of unit and Part No.



DOMINION Quick Change Feed Box

SPARE PARTS

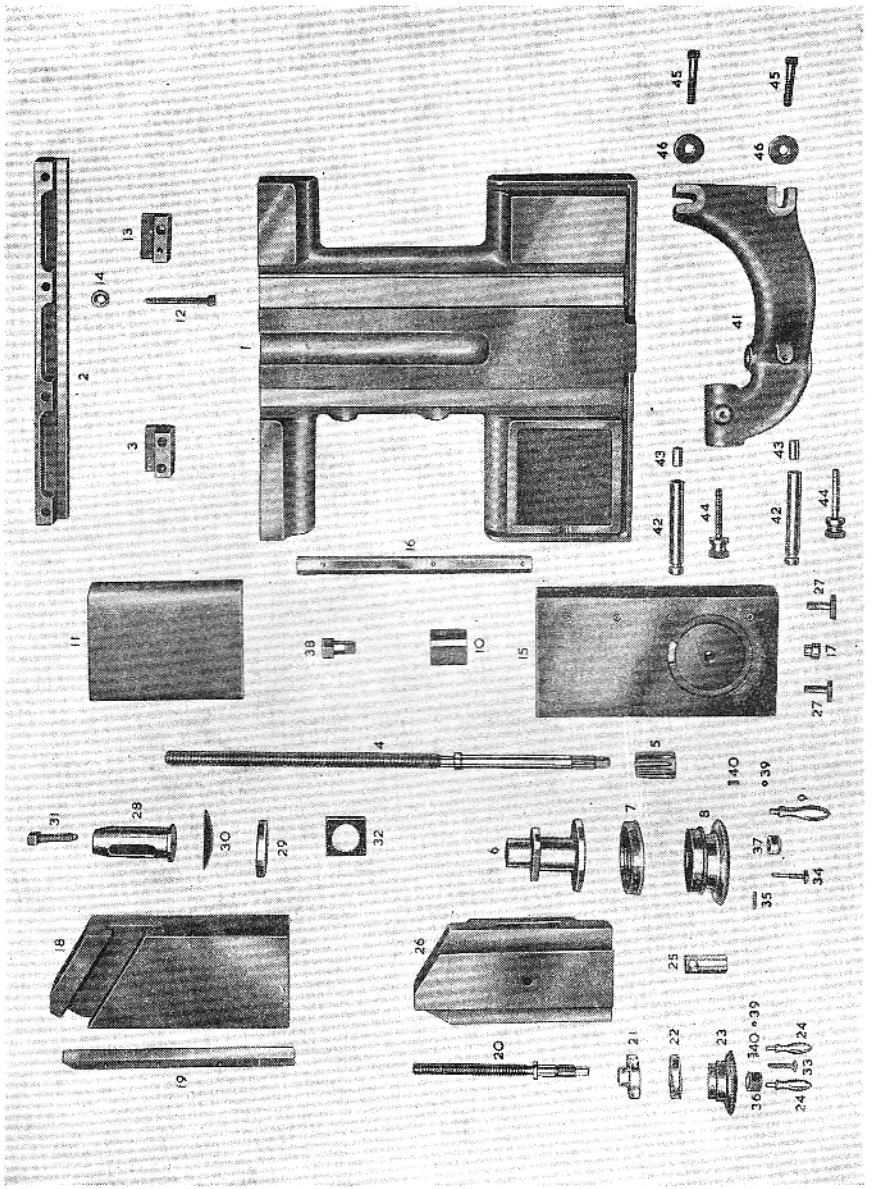
MASCOT SADDLE—*continued*

No.	Name of Part
16	Bottom Slide Strip
17	Pivot for Swivel Slide
18	Topslide
19	" Strip
20	" Screw
21	" Keep
22	" Index Ring
23	" Handwheel
24	" Handwheel Handle
25	" Nut
26	Swivel Slide
27	" " Bolts
28	Tool Plate
29	" " Bolt
30	" " Bolt Nut $\frac{1}{4}$"
31	" " Screw
32	" " Spring
33	Topslide Index Locking Screw
34	Saddle Index Locking Screw
35	Saddle Index Locking Pin
36	Topslide Screw Self Locking Nut $\frac{1}{4}$" B.S.F.
37	Saddle Screw Self Locking Nut $\frac{3}{8}$" B.S.F.
38	Saddle Screw Nut Fixing Screw
39	Ball for Index Rings $\frac{1}{4}$"
40	Springs for Index Rings
41	Follow Rest
42	" " Fingers
43	" " Finger Tips
44	" " Screws
45	Follow Rest Fixing Screws
46	Follow Rest Fixing Screw Washers
	Follow Rest Fixing Screw Nuts
	Saddle Nut Fixing Screw Washer
	Topslide Strip Set-up Screws $\frac{5}{16}$" x $\frac{3}{8}$" Grub Sc.
	Topslide Strip Retaining Screws $\frac{5}{16}$" x $\frac{3}{8}$" Cap Hd.
	Bottom Slide Strip Set-up Screws $\frac{5}{16}$" x $\frac{3}{4}$" Grub Sc.
	Bottom Slide Strip Retaining Screws $\frac{5}{16}$" x $1\frac{1}{4}$" Cap Hd.
	Travelling Steady Finger Fixing Screws $\frac{3}{8}$" x $\frac{3}{4}$" Grub
	Travelling Steady Finger Fixing Pads $\frac{1}{4}$" x $\frac{1}{4}$"
	Back Saddle Strip Screws $\frac{1}{2}$" x 2" ($\frac{7}{16}$" Hex.)
	Front Saddle Strip Screws $\frac{1}{2}$" x 2" ($\frac{7}{16}$" Hex.)
	Saddle Locking Strip Fixing Screw $\frac{1}{2}$" x 2" ($\frac{7}{16}$" Hex.)
	Apron Fixing Screws $\frac{1}{2}$" x $1\frac{1}{4}$" ($\frac{7}{16}$" Hex.)
	Saddle Keep Fixing Screws $\frac{1}{4}$" x $\frac{3}{4}$" Cap Hd.
	Saddle Screw Guard Screws $\frac{1}{4}$" x $\frac{3}{4}$" Cap Hd.
	Swivel Bolt Nuts $\frac{7}{16}$" ($\frac{3}{8}$" Hex.)
	Saddle Oil Screws $\frac{1}{4}$" x $\frac{3}{8}$" Countersunk
	Saddle Oil Screws $\frac{1}{4}$" x $\frac{3}{8}$"
	Topslide Nut Fixing Screw $\frac{5}{16}$" x $\frac{3}{8}$" Grub Sc. Half Dog Pt.
	Topslide Keep Screws $\frac{5}{16}$" x $\frac{3}{4}$" Cap Hd.
	Oilers

DOMINION QUICK CHANGE FEED BOX

1	Gear Box Cover
2	" " Top Cover
3	" " Tumbler Bearing
4	Driving Shaft Bush $2\frac{3}{4}$" long
5	Driving Shaft Bush
6	Inter Shaft Bush $1\frac{5}{16}$" long
7	Cone Shaft Bush $2\frac{11}{16}$" long
8	" " " $1\frac{1}{2}$" long
9	Tumbler Bearing Bush
10	Tumbler Shaft Bush $1\frac{3}{8}$" long
11	" " " $1\frac{11}{16}$"
12	Lead Screw Bush
13	Driving Shaft Gear 16T 24T/10P
14	Inter Shaft Gear 32T/10P
15	" " " 24T/10P
16	Tumbler Shaft Gear 24T 42T/10P
17	Tumbler Gear 24T/10P
18	Inter Shaft 14T/10P
19	Tumbler Shaft
20	" " Collar
21	" Handle
22	" " Socket
23	Tumbler Handle Plunger
24	" Gear Shaft
25	Driving Shaft
26	Driving Shaft Collar
27	Leadscrew Gear Lever
28	" " 24T/10P
29	" Bush
30	Cone Gear Shaft
31	" " " Collar
32	" " 28T/10P
33	" " 26T/10P
34	" " 24T/10P
35	" " 23T/10P
36	" " 22T/10P
37	" " 20T/10P
38	" " 19T/10P
39	" " 18T/10P
40	" " 16T/10P
41	Cone Shaft Pinion 24T/10P
42 & 43	Gear Shifting Levers
44	" " Pads
45	" " Shaft
46	" " Shaft Handle
47	Tumbler Shifting Arm
48	Plug for Tumbler Bearing
49	Tumbler Location Strip
50	Bush for Tumbler Shaft
51	Tumbler Locating Pin
52	Tumbler Roller
53	Pin for Tumbler Roller
54	Filler Plug
55	Plug for Tumbler Shaft Bush
56	Plug for Inter Shaft Bush
57	Tumbler Handle Spring
59	Gear Shifting Lever Pins $\frac{3}{16}$" x $1\frac{1}{4}$" Mills
60	Drain Plug
61	Oil Sight

When ordering spares please give Serial No. of machine, name of unit and Part No.



DOMINION Saddle

SPARE PARTS

DOMINION QUICK CHANGE FEED BOX—*continued*

No.	Name of Part
62	Leadscrew Gear Shifting Shaft
63	Feed Shaft Bearing Bush
64	Tumbler Gear Pin $\frac{3}{16}$" x 1$\frac{1}{4}$"
65	Tumbler Shaft Circlip (External)
67	Keys for Inter Shaft No. 9 Woodruff
68	Leadscrew Gear Bush Key
69	Leadscrew
70	Leadscrew Locknuts
71	Leadscrew Plain Collar
72	Leadscrew Screwed Collar
73	Feed Shaft
74	Change Wheel 42T/10P
75	Spacer Collar on Driving Shaft
76	Knurled Nut on Driving Shaft
77	Plug for Driving Shaft Inside Bush
78	Driving Shaft Circlip (External)
79	Spring (Large)
80	$\frac{3}{8}$" Balls
81	Gasket
82	Bush for Slipping Clutch
83	Slipping Clutch Bearing Bush
84	Peg for Spring
85	$\frac{3}{8}$" Ball
86	Feed Shaft Collar
88	Spring (Small)
89	Oil Ring for Tumbler Shaft Bearing 2$\frac{1}{8}$" bore
	Gear Shifting Shaft Springs
	Gear Shifting Shaft Balls $\frac{1}{4}$"
	Locating Pin Nut $\frac{3}{8}$" (Hex.)
	Leadscrew Gear Lever Pin $\frac{3}{16}$" x 1$\frac{1}{4}$" Mills
	Leadscrew Hand Lever Grub Screw $\frac{5}{16}$" x $\frac{7}{16}$" Grub Sc.
	Top Cover Screws ($\frac{5}{16}$" x 2$\frac{1}{4}$") ($\frac{5}{16}$" x 1$\frac{1}{4}$") Cap Hd.
	Front Cover Screws $\frac{3}{8}$" x 1" Cap Hd.
	Front Cover Dowel Pin $\frac{3}{8}$" x 1$\frac{1}{4}$"
	Tumbler Bearing Bush Screws $\frac{5}{16}$" x $\frac{3}{8}$" Cap Hd.
	Tumbler Arm Screw $\frac{3}{8}$" x 1$\frac{1}{2}$" Cap Hd.
	Gear Box Bush Locating Screws $\frac{5}{16}$" x $\frac{3}{8}$" Grub Sc.
	Leadscrew End Collar Grub Screw $\frac{5}{16}$" x $\frac{7}{16}$"
	Locating Strip Fixing Screw $\frac{3}{8}$" x 1" Cap Hd.
	End Plug Grub Screw $\frac{5}{16}$" x $\frac{7}{16}$"
	Feed Shaft Collar and Bush Screw $\frac{5}{16}$" x $\frac{1}{2}$" Grub Sc.
	Inter Shaft Gear Grub Screw $\frac{5}{16}$" x $\frac{3}{8}$"
	Tumbler Handle Pin $\frac{5}{32}$" x 1$\frac{1}{4}$" Silver Steel
	Cone Shaft Collar Grub Screws $\frac{5}{16}$" x $\frac{3}{8}$"
	Locating Strip Adjusting Screws $\frac{5}{16}$" x $\frac{3}{8}$" Grub Sc. Half Dog point
	Locating Strip Locking $\frac{5}{16}$" x $\frac{5}{16}$" Grub Sc.
	Gear Shifting Hand Lever Grub Screws $\frac{5}{16}$" x $\frac{7}{16}$"
	Leadscrew Spacer Collar Key No. 15 Woodruff
	Cone Shaft Gear Key No. 15 Woodruff

DOMINION SADDLE

1	Carriage
2	" Gib (Back)
3	" Gib (Front)
4	" Screw
5	Carriage Screw Pinion 12T/10P
6	Carriage Screw Keep
7	" " Index Ring
8	" " Handwheel
9	Carriage Screw Handwheel Handle
10	Carriage Screw Nut
11	" " Guard
12	" Locking Screw
13	" Locking Gib
14	Washer for Saddle Locking Bolt
15	Bottom Slide
16	Bottom Slide Gib
17	Pivot for Swivel Slide
18	Topslide
19	" Gib
20	" Screw
21	" Keep
22	" Index Ring
23	" Handwheel
24	" Handwheel Handle
25	" Nut
26	Swivel Slide
27	Swivel Slide Bolts
28	Tool Holder
29	" " Collar
30	" " Swivel Piece
31	Tool Holder Screw $\frac{1}{4}$" x 2$\frac{1}{2}$" Half Dog ($\frac{1}{2}$" Sq. Hd.)
32	Tool Holder Clamp Plate
33	Topslide Index Locking Screw
34	Carriage Index Locking Screw
35	Carriage Index Locking Pin
36	Topslide Screw Self Locking Nut $\frac{1}{2}$" B.S.F.
37	Carriage Screw Self-Locking Nut $\frac{5}{8}$" B.S.F.
38	Carriage Screw Nut Fixing Screw
39	Ball for Index Rings $\frac{1}{4}$"
40	Spring for Index Rings
41	Follow Rest
42	" " Fingers
43	" " " Tips
44	" " " Screws
45	" " Fixing Screws
46	" " " Washers
	Saddle Nut Fixing Screw Washer
	Topslide Gib Set-up Screws $\frac{5}{16}$" x $\frac{3}{8}$" Grub Sc.
	Topslide Gib Retaining Screws $\frac{5}{16}$" x $\frac{3}{8}$" Cap Hd.
	Bottom Slide Gib Set-up Screws $\frac{5}{16}$" x $\frac{3}{8}$" Grub Sc.
	Bottom Slide Gib Retaining Screws $\frac{5}{16}$" x 1$\frac{1}{2}$" Cap Hd.

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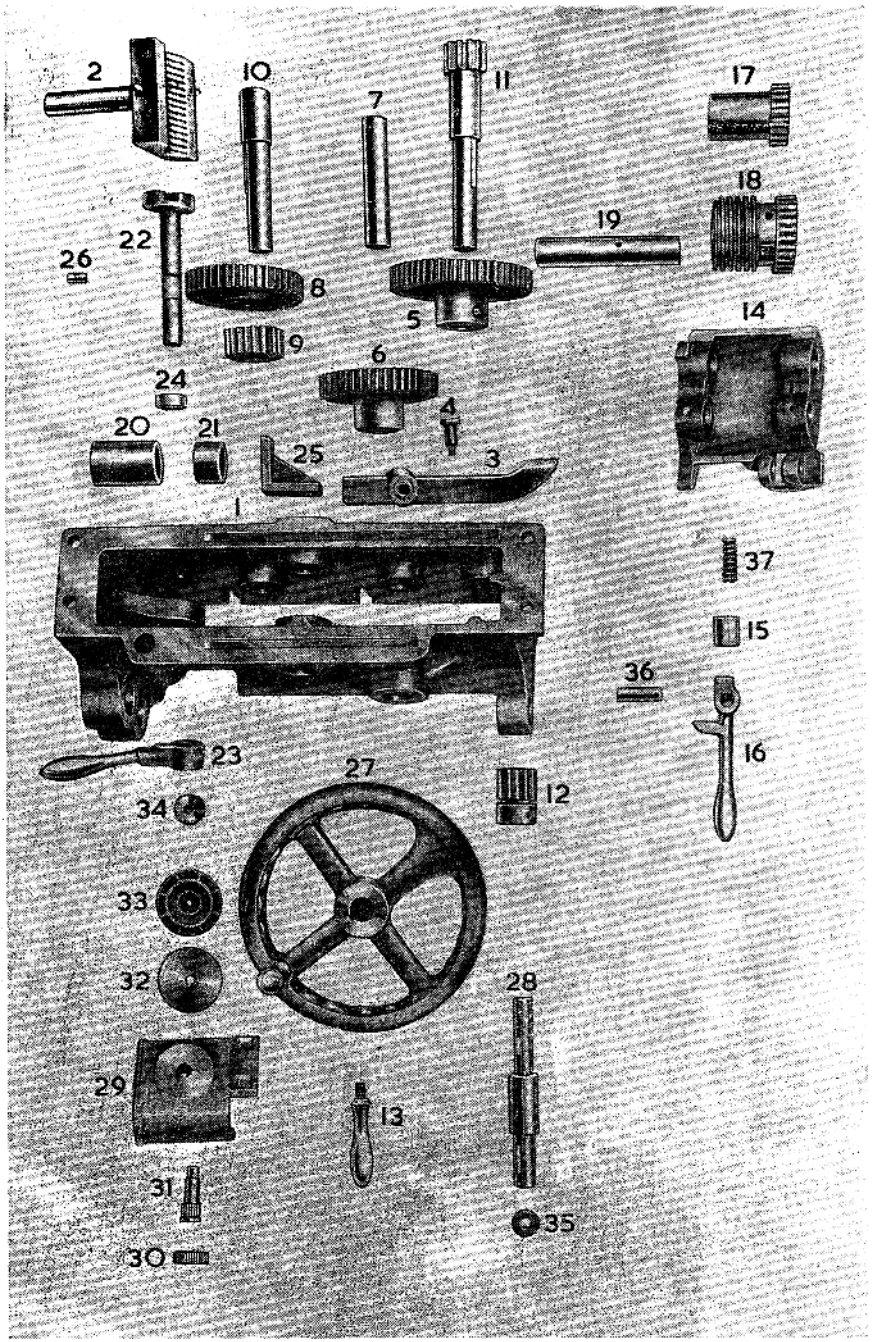
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The Apron

SPARE PARTS

DOMINION SADDLE—*continued*

No.	Name of Part
	Follow Rest Finger Fixing Screws $\frac{3}{8}$" x $\frac{3}{4}$" Grub Sc...
	Follow Rest Finger Fixing Pads $\frac{1}{4}$" x $\frac{1}{2}$" .. ..
	Back Carriage Gib Screws $\frac{1}{2}$" x 2" ($\frac{7}{16}$" Hex.) ..
	Front Carriage Gib Screws $\frac{1}{2}$" x 2" ($\frac{7}{16}$" Hex.) ..
	Carriage Locking Gib Fixing Screw $\frac{1}{2}$" x 2" ($\frac{7}{16}$" Hex.)
	Apron Fixing Screws $\frac{1}{2}$" x $1\frac{1}{4}$" ($\frac{7}{16}$" Hex.) .. ..
	Carriage Keep Fixing Screws $\frac{1}{4}$" x $\frac{3}{4}$" Cap Hd. .. ..
	Carriage Screw Guard Screws $\frac{1}{4}$" x $\frac{3}{4}$" Cap Hd. ..
	Swivel Bolt Nuts $\frac{7}{16}$" (Hex.)
	Carriage Oil Screws $\frac{1}{4}$" x $\frac{3}{8}$" Countersunk .. ..
	Carriage Oil Screws $\frac{1}{4}$" x $\frac{3}{8}$" Countersunk .. ..
	Topslide Nut Fixing Screw $\frac{5}{16}$" x $\frac{3}{8}$" Grub Sc. Half Dog Point .. .. ..
	Topslide Keep Screws $\frac{7}{16}$" x $\frac{3}{4}$" Cap Hd. .. ..
	Oilers .. .. ..

APRON

1	Apron .. .. ..
2	Leadscrew Half Nut ..
3	Locking Piece .. ..
4	Locking Piece Stud ..
5	Sliding Worm Wheel 55T/10P .. .. ..
6	Surfacing Worm Wheel 46T/10P .. .. ..
7	Surfacing Worm Wheel Shaft .. .. ..
8	Intermediate Wheel 45T/10P
9	Intermediate Pinion 22T/10P
10	Intermediate Shaft ..
11	Rack Pinion 12T/8P ..
12	Racking Pinion 15T/10P ..
13	Handwheel Ball Handle ..
14	Worm Box .. .. ..
15	,, ,, Plunger ..
16	,, ,, Handle ..
17	,, ,, Pinion 18T/10P
18	Worm Box Worm and Pinion 31T/10P .. ..
19	Worm Box Worm and Pinion Shaft .. ..
20	Worm Box Long Spacer ..
21	Worm Box Short Spacer ..
22	Leadscrew Nut Ecc. Cam. ..
23	Leadscrew Nut Handle ..
24	Leadscrew Nut Ecc. Cam Collar .. .. ..
25	Leadscrew Bracket ..
26	Ecc. Cam Pin .. ..
27	Handwheel .. .. ..
28	,, Racking Shaft ..
29	Dial Indicator Guard ..
30	,, ,, Gear ..
31	,, ,, Gear Stud ..
32	,, ,, Gear Disc
33	,, ,, Gear Disc Plate
34	Domed Washer for Leadscrew Nut Handle ..
35	Domed Washer for Racking Shaft .. .. ..
36	Worm Box Plunger Handle Shaft .. .. ..
37	Worm Box Plunger Spring
	Inter Shaft No. 15 Woodruff Key .. .. ..
	Rack Shaft No. 15 Woodruff Key .. .. ..
	Racking Shaft No. 9 Woodruff Key .. .. ..
	Handwheel Domed Washer Screw $\frac{1}{4}$" x $\frac{3}{4}$" Cap Hd.
	Leadscrew Nut Handle Domed Washer Screw $\frac{1}{4}$" x $\frac{3}{4}$" Cap Hd. .. ..
	Worm Box Handle Shaft Screw $\frac{1}{4}$" x $\frac{1}{2}$" Grub Sc.
	Worm Box Gear Pin $\frac{5}{16}$" x $2\frac{1}{2}$" Mills .. .. ..
	Safety Strip Stop Screw $\frac{1}{4}$" x 1" Countersunk ..
	Sliding Worm Wheel Grub Screw $\frac{5}{16}$" x $\frac{3}{8}$" .. ..
	Surfacing Worm Wheel Grub Screw $\frac{5}{16}$" x $\frac{3}{8}$" ..
	Intermediate Worm Wheel Grub Screw $\frac{5}{16}$" x $\frac{3}{8}$" ..
	Racking Pinion Pin $\frac{1}{4}$" x $1\frac{3}{4}$" Mills .. .. ..
	Dial Indicator Stud Screw $\frac{5}{16}$" x $\frac{1}{4}$" Grub Sc. ..
	Dial Indicator Plate Screw $\frac{1}{8}$" x $\frac{3}{8}$" Round Hd. Brass..
	Dial Fixing and Marking Screws $\frac{1}{8}$" x $\frac{3}{8}$" Self Drive
	Dial Indicator Guard Screw $\frac{3}{8}$" x $1\frac{1}{4}$" (Hex.) .. ..
	Leadscrew Handle Stop Screw $\frac{1}{4}$" x $\frac{3}{4}$" Cap Hd. ..
	Leadscrew Handle Ball $\frac{1}{4}$" ..
	Leadscrew Handle Spring ..
	Indicator Guard Pins $\frac{1}{4}$" x $\frac{1}{2}$" Mills .. .. ..
	Leadscrew Nut Bracket Screws $\frac{1}{4}$" x $\frac{3}{4}$"Countersunk
	Ecc. Cam Shaft Collar Screw $\frac{1}{4}$" x $\frac{1}{2}$" Grub Sc. ..

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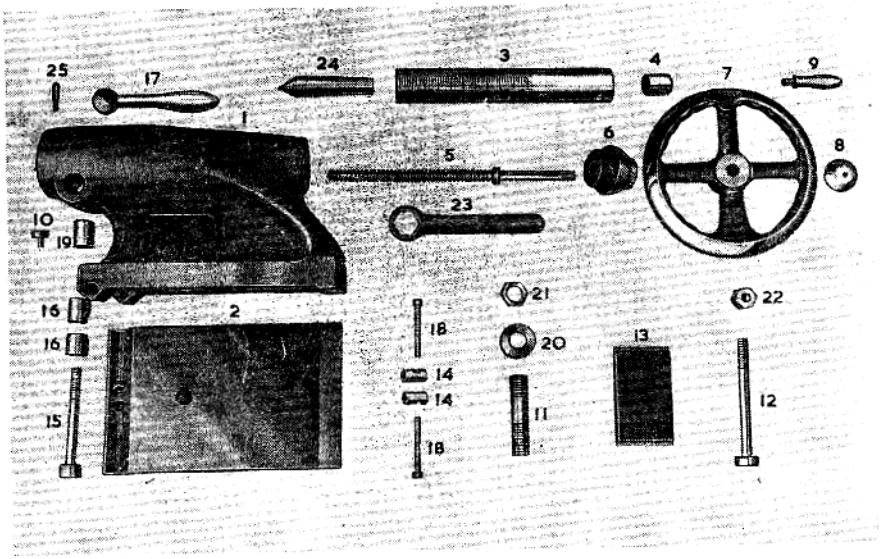
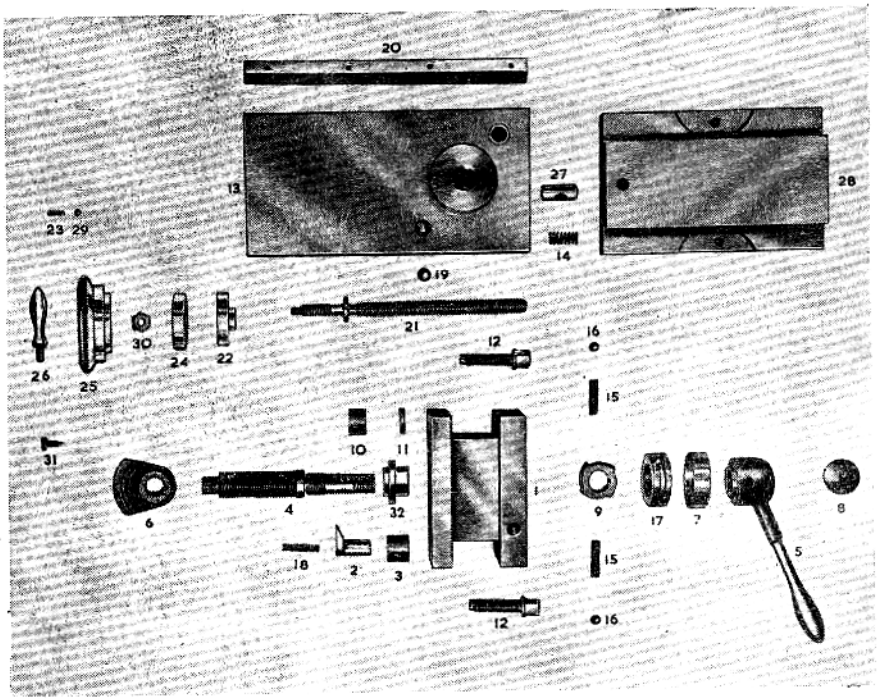


The Tailstock



The Square Turret Toolpost

SPARE PARTS

TAILSTOCK

No.	Name of Part
1	Tailstock
2	,, Base
3	,, Barrel
4	,, ,, Nut
5	,, Screw
6	,, Keep
7	,, Handwheel
8	Domed Washer for Handwheel
9	Tailstock Handwheel Handle
10	,, Barrel Tee Key
11	,, Hollow Stud
12	,, Clamp Stud
13	,, ,, Plate
14	,, Set Over Nut
15	Barrel Clamping Stud
16	Barrel Clamping Bush
17	,, ,, Handle
18	Tailstock Set Over Screws $\frac{5}{16}$" x $2\frac{3}{4}$" Cap Hd.
19	Barrel Clamping Stud Sleeve
20	Hollow Stud Washer
21	,, ,, Nut
22	Clamp Stud Nut
23	Ring Spanner
24	Centre
25	Locking Handle Stop Pin
	Tailstock Keep Retaining Grub Screws ($\frac{5}{16}$" x $\frac{7}{16}$")
	Tailstock Domed Washer Screw ($\frac{1}{4}$" x $\frac{3}{4}$" Cap Hd.)
	Tailstock Set-over Nuts Retaining Grub Screws ($\frac{1}{4}$" x $\frac{3}{8}$")

SQUARE TURRET TOOL POST

1	Square Turret
2	,, ,, Plunger
3	,, ,, ,, Bush
4	Square Turret Clamping Screw
5	Square Turret Clamping Handle
6	Square Turret Cam
7	Square Turret Thrust Washer Cover
8	Square Turret Domed Washer
9	Square Turret Indexing Cam
10	Square Turret Plunger Locating Bushes
11	Square Turret Bushes Ejecting Collar
12	Square Turret Tool Screws
13	Square Turret Top Slide
14	Square Turret Locating Spring
15	Square Turret Cam Spring
16	Square Turret Cam Spring Ball $\frac{3}{8}$" dia.
17	Square Turret Thrust Washer W. $1\frac{1}{4}$"
18	Plunger Spring
19	Location Ball $\frac{3}{8}$" dia.
20	Square Turret Top Slide Gib
21	Square Turret Topslide Screw
22	Square Turret Topslide Keep
23	Square Turret Topslide Index Ring Springs
24	Square Turret Topslide Index Ring
25	Square Turret Topslide Handwheel
26	Square Turret Topslide Handwheel Handle
27	Square Turret Topslide Nut
28	Square Turret Swivel Slide
29	Square Turret Ballsfor Index Rings
30	Square Turret Topslide Screw Locknut
31	Square Turret Topslide Handwheel Locking Screw
32	Square Turret Clamping Nut Domed Washer Screw $\frac{1}{4}$" x $\frac{3}{4}$" Cap Hd.
	Topslide Strip Set-up Screws $\frac{5}{16}$" x $\frac{7}{16}$" Grub Screws
	Topslide Strip Retaining Screws $\frac{5}{16}$" x $\frac{5}{8}$" Cap Hd.
	Topslide Keep Screws $\frac{1}{4}$" x $\frac{3}{4}$" Cap Hd.
	Cam Spring Screws $\frac{7}{16}$" x $\frac{1}{2}$" Grub Sc.
	Plunger Cam Grub Sc. $\frac{1}{4}$" x $\frac{3}{8}$" Grub Sc.
	Plunger Cam Stop Sc. $\frac{1}{4}$" x $\frac{3}{8}$" Grub Sc.
	Oilers

When ordering spares please give Serial No. of machine, name of unit and Part No.

SPARE PARTS

STATIONARY STEADY

No.	Name of Part
1	Stationary Steady .. ..
2	,, ,, Top ..
3	,, ,, Loop ..
4	,, ,, Fingers ..
5	,, ,, Finger Tips
6	,, ,, Screws
7	Stationary Steady Clamp Plate .. .. ..
8	Stationary Steady Clamp Bolt $\frac{3}{8}$" x $3\frac{3}{8}$" ($\frac{5}{16}$" Hex.) ..
9	Stationary Steady Hinge Bolt $\frac{3}{8}$" x $1\frac{3}{4}$" Cap Hd. .. ..
10	Stationary Steady Hinge Bolt Nut $\frac{1}{2}$" Thin .. ..
11	Stationary Steady Loop Pin
12	Stationary Steady Loop Screw $\frac{3}{8}$" x $1\frac{1}{2}$" ($\frac{5}{16}$" Hex.)
13	Stationary Steady Clamp Bolt Hex. Nut $\frac{3}{8}$" x 1" Deep ($\frac{3}{8}$" Hex.) .. ..
14	Stationary Steady Clamp Bolt Washer $\frac{3}{8}$" Std. ..
15	Stationary Steady Finger Locking Screws $\frac{5}{16}$" x $\frac{3}{4}$" Grub Screw .. ..
	Stationary Steady Locking Screw Pads $\frac{1}{4}$" x $\frac{1}{4}$" ..

TAPER TURNER

1	Taper Turner Bracket ..
2	,, ,, ,, Strip
3	Taper Turner Connecting Slide .. .. ..
4	Taper Turner Slide .. ..
5	,, ,, ,, Bush
6	Taper Turner Swivelling Plate .. .. ..
7	TaperTurner Plate ..
8	,, ,, Slide Strip ..
9	Anchor Bracket Clamp Plate
10	Anchor Bracket Clamp Plate Bolt $\frac{3}{8}$ x 2" Hex. ..
11	Anchor Bracket Clamp Rod
12	Anchor Bracket Clamp Washer $\frac{3}{8}$" Std. ..
13	Anchor Bracket .. ..
14	Saddle Screw Nut Fixing Bolt .. .. ..
15	Swivelling Plate Screws (2) ..
16	Swivelling Plate Spigot ..
17	Saddle Screw Nut Bolt Washer $\frac{3}{8}$" Std. ..
18	Anchor Bracket Clamp Rod Washer .. .. ..
19	Anchor Bracket Clamp Plate Rod Nut $\frac{3}{8}$" Hex. ..
	Taper Turner Bracket Fixing Screws $\frac{3}{8}$" x $1\frac{1}{2}$" Hex. ..
	Taper Turner Bracket Dowel Pins $\frac{1}{4}$" x $1\frac{1}{2}$" .. ..
	Taper Turner Bracket Strip Set-up Screws $\frac{5}{16}$" x $\frac{3}{8}$" Grub
	Taper Turner Bracket Strip Retaining Screws $\frac{5}{16}$" x $\frac{3}{8}$" Cap Hd. .. .. ..
	Taper Turner Slide Set-up Screws $\frac{5}{16}$" x $\frac{7}{16}$" Grub Screw .. .. ..
	Taper Turner Slide Retaining Screws $\frac{5}{16}$" x $\frac{3}{8}$" Grub Screw .. .. ..
	Taper Turner Connecting Slide Top Fixing Screws $\frac{1}{4}$" x 1" Cap Hd. ..
	Taper Turner Connecting Slide End Fixing Screws $\frac{1}{4}$" x 1" Cap Hd. ..
	Spherical Washer ..
	Dust Cap for Nut Hole ..

MECHANICAL CLUTCH

1	Clutch Pulley .. ..
2	,, Ring .. ..
3	,, Bobbin .. ..
4	,, Ring Adjusting Screw
5	,, Body .. .. ..
6	,, Flanged Bearing ..
7	,, ,, ,, Bush
8	,, Expanding Lever ..
9	,, Ring Operating Lever
10	,, ,, Spring ..
11	,, ,, Fixing Bolt ..
12	,, Shaft Circlip ..
13	,, Driving Shaft ..
14	,, Shifting Fork ..
15	,, Operating Rod ..
16	,, Driving Shaft Bush
17	,, Driving Link ..
18	,, Lever .. ..
19	,, Handle Stem ..
20	,, ,, Shaft ..
21	Clutch Pulley Bearing Spacer Ring .. .. ..
22	Clutch Pulley Securing Nut
23	,, Driving Shaft Washer
24	Clutch Driving Shaft Oil Seal .. .. ..
25	Clutch Pulley Bearing Front
26	,, ,, ,, Back
27	Clutch ,, Pulley ,, Bearing Circlip .. .. ..
28	Plastic Knob $1\frac{1}{4}$" dia. $\frac{3}{8}$" Whit. .. .. ..
29	Brake Segment .. ..
30	Adjusting Screw Nut ..
	Clutch Driving Link Stud ..
	Flanged Bearing Retaining Screws (4) .. ..
	Operating Lever Screw (1)
	Retaining Washer Screw (1)
	,, Washer Pin (1) ..

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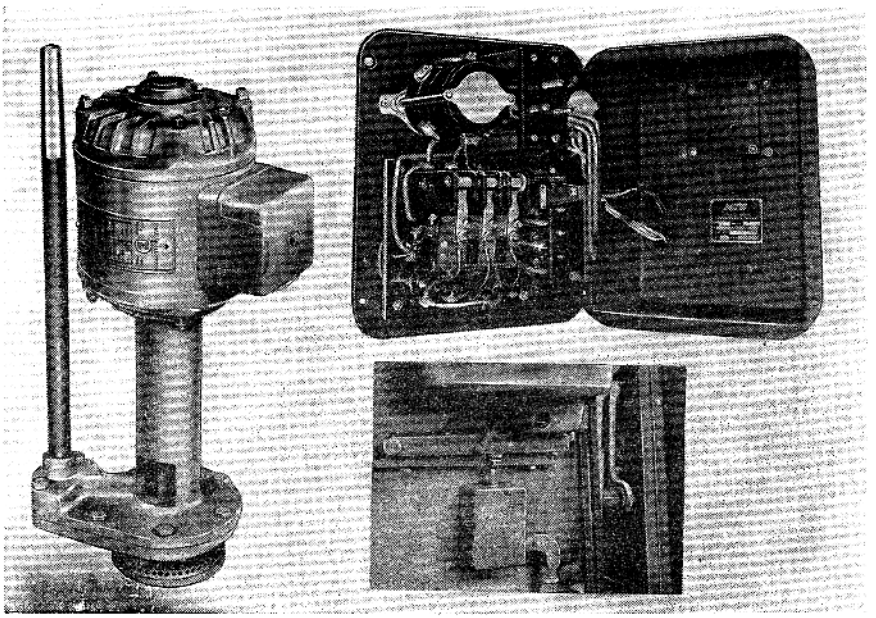
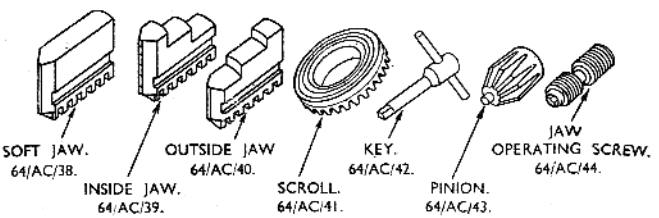
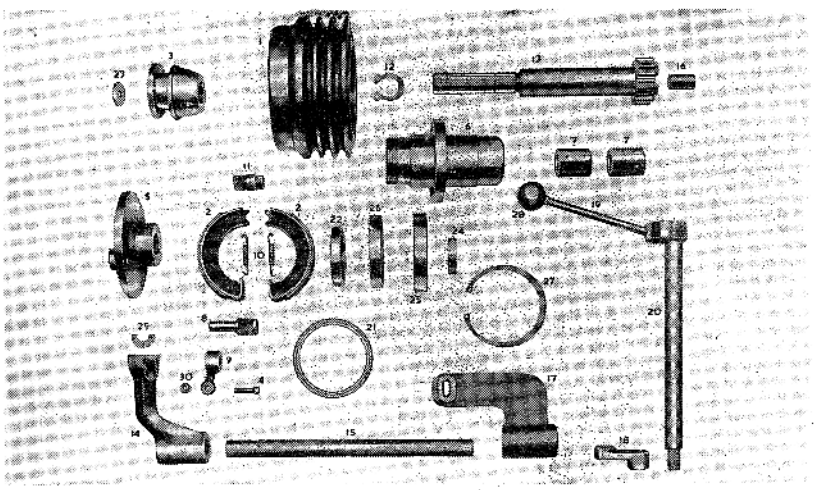


Electrical Equipment



Chuck Spares



Mechanical Clutch

SERVICE HINTS

After several years of use it may be necessary to give attention to various mechanisms and parts which have had extra hard wear and thus tend to cause minor troubles.

Should chatter take place the following points should be observed and given the necessary attention:—

1. See that all slide strips are properly adjusted.
2. Check that there is no lift in the saddel by ensuring that the front and back strips are bedding correctly.
3. Make sure that the Chuck is a good fit on the spindle nose and has not worked loose.
4. The tool should have a keen cutting edge and not be allowed to get dull: see that it is set correctly on the centre line.

Feed Failure

This may be due to the shearing of the shear pin, which can easily be replaced (see page 11) or through the slipping clutch which is housed at the right hand end of the feed box. To adjust this, first release collar on the inside of the tail end bracket and withdraw feed shaft, which will allow the screw in the end to be adjusted, usually a quarter of a turn will be found sufficient.

Lathe not cutting parallel

The lathe bed should be tested for level as described on page 17 and if necessary, the adjustments made. If the gap piece has been removed at any time and has not been correctly replaced this could also be a cause of the trouble when cutting at this end of the bed.

Electric Failure

Points to check:

1. That the Micro Switches are in contact, that is, the tail end cabinet door must be unlocked and the change wheel guard in place.
2. See that the starting switch at the back of the head is working correctly.
3. Check fuses in panel.
4. Check that the three fixing screws in the front of the panel are firmly screwed and that the three pin plug locates in its socket.
5. Panel not holding on, check auxiliary contact on main contactor and any loose connections.

INDEX

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