

13" 6500 Series
Serial No. from 58650 to 63742

THIS MANUAL

applies to the Clausing-Colchester 13 in × 24 in and 13 in × 36 in heavy duty, geared-head precision lathes.

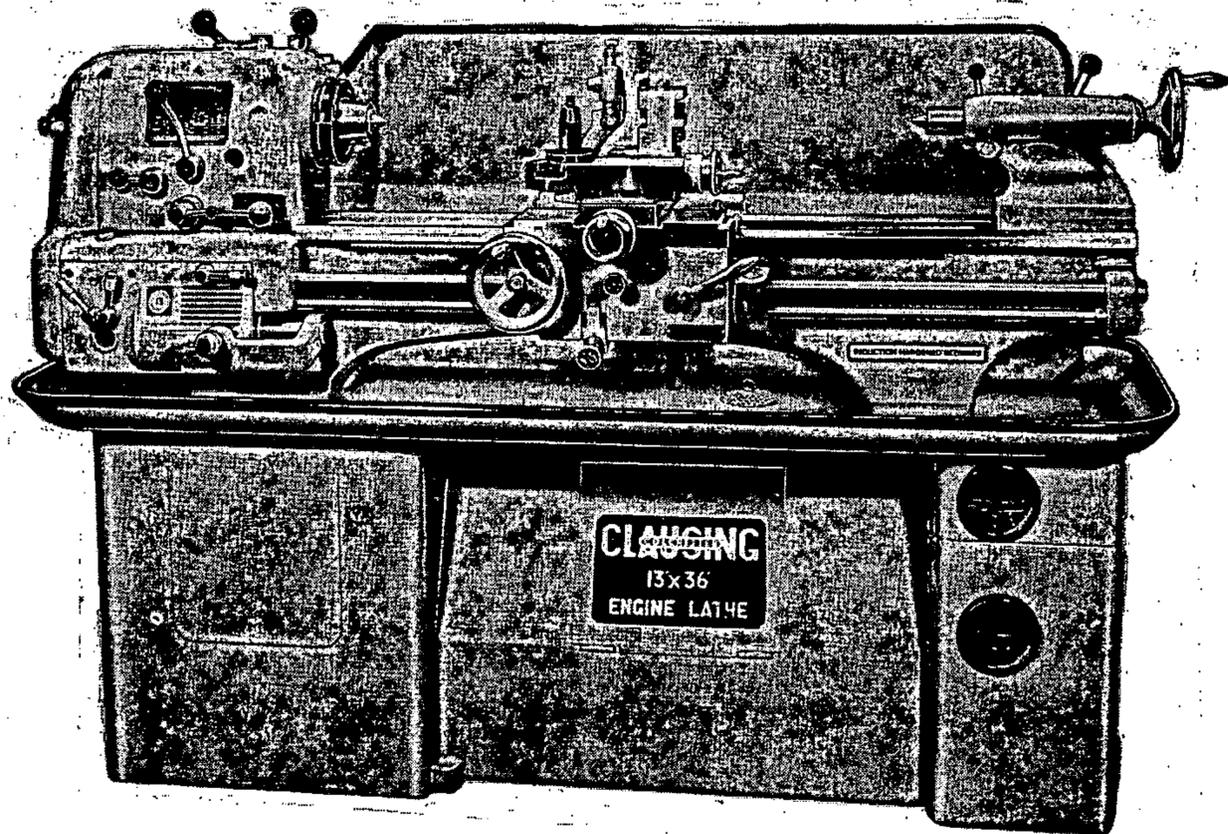
A full understanding of the contents will help you obtain the best results from the machine and achieve the standards of accuracy available.

Our Technical Service Department is always at your disposal to discuss any problems concerning the application of Clausing-Colchester lathes and their planned accessories or attachments. The aim is to ensure maximum satisfaction with your lathe.

The machine serial number is stamped at the tailstock end of the bed and **MUST** be quoted in all communications regarding your lathe.

Due to the Company policy of continuous improvement, designs may be modified or changed at any time without notice and this manual applies only to the machine with which it is issued.

THE SERIAL NUMBER OF YOUR MACHINE IS



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INTRODUCTION

Clausing-Colchester lathes are the result of half a century of concentration in manufacture of this type of machine tool. Whilst essentially precision tools intended for producing accurate workpieces, the design of robust construction and simplified controls makes these machines suitable for tooling in production work.

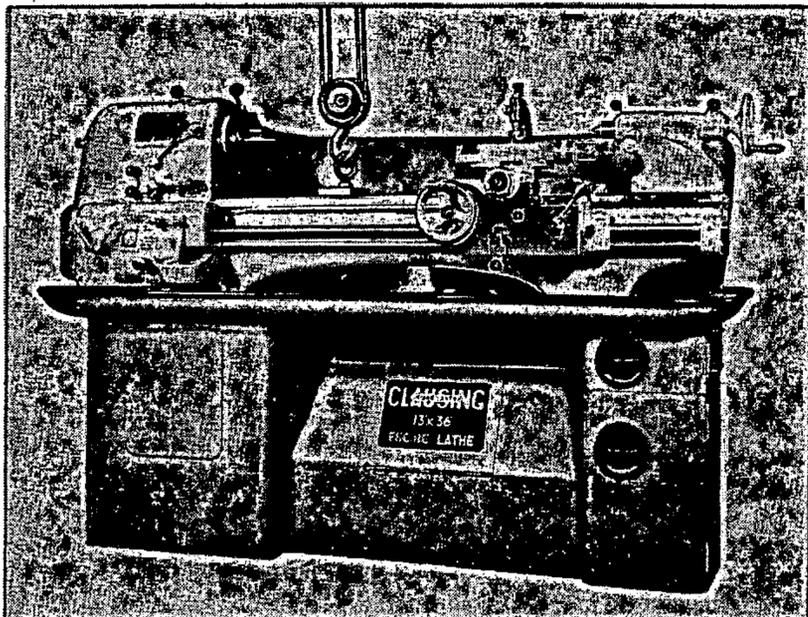
All castings are naturally aged for at least six months to avoid possible distortion. Jigs and special-purpose machines are used extensively in our manufacturing operations to ensure interchangeability of components. Care is taken in all processes of all departments to ensure your satisfaction with the machine.

The headstock is an all-g geared arrangement, totally enclosed within an oilbath and giving sixteen spindle speeds. The main spindle is precision finished from a heat-treated high tensile steel forging and is carried at the front end on Gamet high precision double row taper roller bearings of exceptional accuracy which are specially manufactured to our requirements. The rear end of the spindle is carried in a single-row taper roller bearing of similar design. All headstock spindles and shafts are carried in needle roller anti-friction bearings.

LIFTING

The complete machine weighs approximately 1,550 lb and proper equipment must, therefore, be made available for handling this weight. All lifting and repositioning should be carried out with great care. It is recommended that a lifting bolt with clamp plates to the dimensions shown on the sketch should be used. Wind the saddle and slides towards the tail end of the lathe and fit the clamp plate securely at the point of balance of the machine.

Do not sling the machine from any other points. In case of difficulty, consult your local Clausing-Colchester agent.



LIFTING THE LATHE

CLEANING

Each lathe is delivered having all bright machined surfaces covered with a heavy protective coating. Before attempting to operate the machine remove all traces of the preservative using white spirit or kerosene.

DO NOT USE CELLULOSE SOLVENTS FOR CLEANING—THESE WILL DAMAGE THE PAINT FINISH.

When cleaning, pay particular attention to the slides and spindle nose. It is essential that the end guard be removed and the gear train carefully cleaned before operating the lathe.

All cleaned parts should then be dried using fluff-free cloth and the bright surfaces given a light coating of Shell Tellus 33 oil.

WORKING AREA

When deciding upon the position for the lathe, remember that sufficient room must be allowed not only for ease of operation but to permit the end guard to be opened, for access to the motor compartment at the rear of the cabinet base and for the servicing operations recommended.

A foundation plan is included which gives the main installation dimensions and also the recommended minimum space required for efficient operation of the machine under all conditions of working.

INSTALLING

In order to achieve the full standards of accuracy built in to your Clausing-Colchester lathe, it is essential that the machine be installed upon a solid concrete base which must be as level and free from vibration as possible. For most applications the machine will then perform perfectly satisfactorily whilst free-standing. When operating at high speed on out-of-balance work, however, it may become necessary to bolt the machine to the concrete foundation. Instructions for installation of the machine under both sets of conditions are given below.

Careful attention to siting and foundation will greatly add to the accuracy of the work produced and to the life of the machine. If the lathe must be installed above ground floor level, it is essential for best results to provide a concrete floor and to position the machine headstock as close as possible to a supporting wall or pillar. Wooden floors are not recommended because changes in atmospheric conditions which affect the floor will adversely affect the alignment of the machine. When wooden floor siting is unavoidable, a section of the floor should be taken up and a concrete base built up to the floor level.

It is not recommended that the machine is placed on felt or rubber mats no matter what type of foundation is provided.

THE MACHINE SHOULD NOT BE GROUTED IN.

FREE STANDING MACHINES

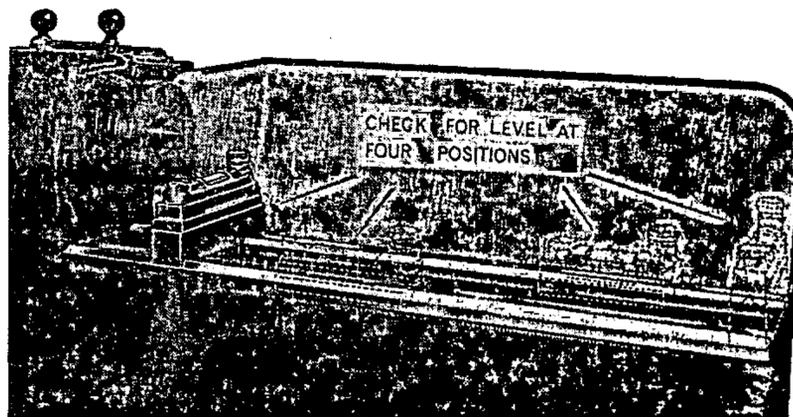
1. Position the lathe level upon the three fixed feet (shown in the installation plan).
2. Screw down the adjustable feet to each take its share of the load without losing ground contact at any other foot. Lock the adjustable feet.
3. Run the lathe. Any evident vibration will be due to incorrect setting of the adjustable feet; and this can be eliminated by slight alteration of the setting whilst the machine is running. Re-lock the adjustable feet.
4. For all normal operating requirements, the mounting as described will give all the support necessary.
5. It is essential that the machine is correctly levelled before using it in production and each time an adjustment is made to the foundation bolts or mounting feet. A precision engineers' level should be used and readings taken across headstock and tailstock ends and then in two positions on both front and rear bed shears in a longitudinal direction. Careful attention to levelling will greatly add to the accuracy of work produced and to efficient life of the machine. If the foundation is not accurate and level it may be necessary to adjust the levelling screws provided at the base of the cabinet.

BOLTING DOWN

1. Position the lathe level upon the three fixed feet (shown in the installation plan as FF).
2. Screw down the adjustable feet to each to take its share of the load without losing ground contact with any other foot. Lock the adjustable feet.
3. Insert $\frac{1}{2}$ in diameter foundation bolts through the bolt positions provided and into cleanly drilled holes in the concrete foundation. When inserted, they should be firmly secured within the foundation before attempting to tighten the holding-down nuts.
4. Secure the holding-down bolts firmly but avoid overtightening. Bolt tension should be just sufficient to retain the machine in position without disturbing the cross-wind alignment.
5. Run the machine. Any evident vibration will be due to incorrect setting of the adjustable feet which can be remedied by slackening the mounting bolts and altering the adjustment a little at a time. Care and attention given to obtain the correct setting at this stage will be well repaid. Re-lock the adjustable feet before tightening the mounting bolts.
6. It is essential that the machine is correctly levelled before using it in production and each time an adjustment is made to the foundation bolts or mounting feet. A precision engineers' level should be used and readings taken across headstock and tailstock ends and then in two positions on both front and rear bed shears in a longitudinal direction. Careful attention to levelling will greatly add to the accuracy of work produced and to efficient life of the machine. If the foundation is not accurate and level it may be necessary to adjust the levelling screws provided at the base of the cabinet.

ALIGNMENT CHECKS

When the machine is installed initially, or after subsequent re-positioning, it is advisable to carefully check the alignment of the headstock and tailstock. All machines are accurately aligned before despatch from the Works, but transit shocks may render a further checking necessary or of benefit.

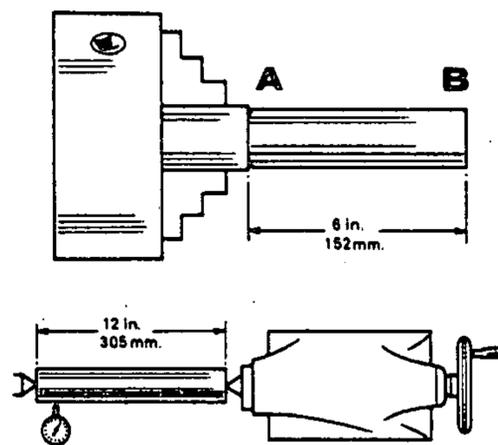


HEADSTOCK ALIGNMENT

Grip a length of mild steel bar in the chuck and using keen tools take a light cut over the outside diameter for about 6 in of its length. Do not use the tailstock centre as a steady during this test.

Micrometer readings at the two ends of the turned ends of the turned diameter (at A and B in the sketch) should be precisely the same. If the readings differ, the headstock should be re-aligned as follows:—

1. Slacken the four socket-head headstock retaining screws until only finger tight. This will allow the headstock to pivot about the locating dowel.
2. Accurate adjustment for re-alignment can be made using the 'set-over' pad which is built into the underside of the headstock and rests between the bedway.
3. After alignment, tighten the locknut on each adjusting screw of the set-over pad and securely tighten headstock retaining screws.



TAILSTOCK ALIGNMENT

Place a prepared 12 in ground steel bar between centres, as shown in the sketch. Then to the top slide fix a dial indicator with its anvil running along the horizontal centre-line of the test bar. By traversing the saddle along the bed, an accurate check on alignment can be made.

Any alignment errors may be rectified by adjustment to the two set-over screws provided one at each side of the tailstock base.

CLAUSING COLCHESTER

DIVISION, ATLAS PRESS CO.
KALAMAZOO, MICHIGAN

INSTALLING ELECTRIC CONTROL PANEL ASSEMBLY

ON
13" CLAUSING-COLCHESTER LATHES
FROM SERIAL NO. 58650 TO 63742

April 1964 FILE NO. 13"-CC ELEC-4

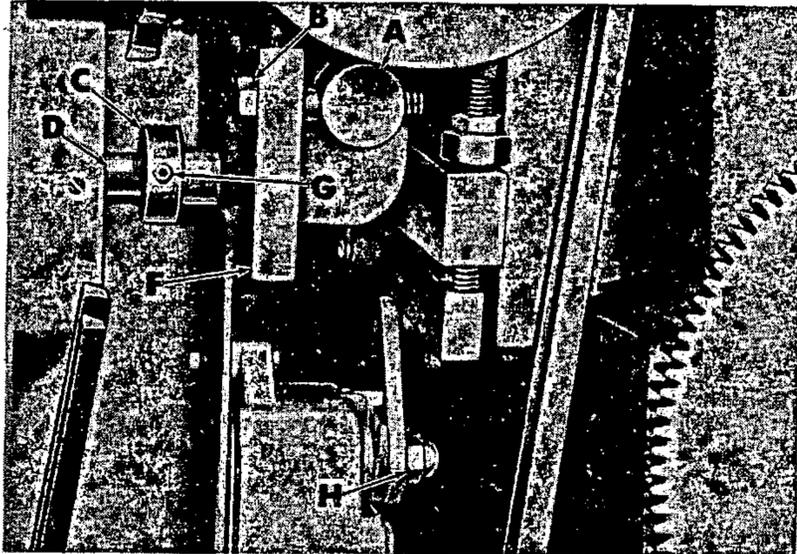


Figure 1

1. Before installing switch panel assembly turn the reversing switch shaft (D, fig. 1) clockwise as far as it will go, and then back two "clicks" — the switch is now in the off position.

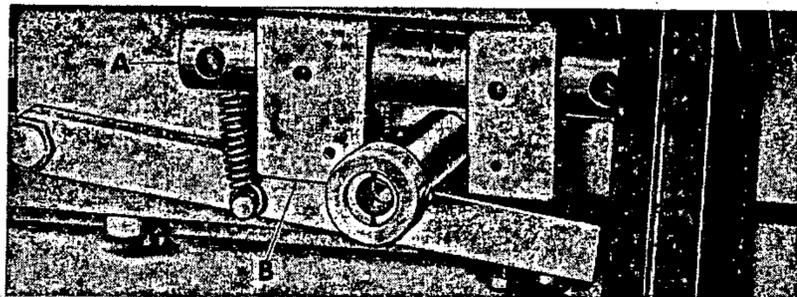


Figure 2

2. Slide switch panel mounting bar (A, fig. 2) in holes in back of headstock (B).
3. Slide drum switch shaft (D, fig. 1) with switch panel into coupling (C), then align mounting bar (A) with holes in mounting plate (F) and secure in place with two 3/8-16 x 2" screws (B). DO NOT TIGHTEN SECURELY.

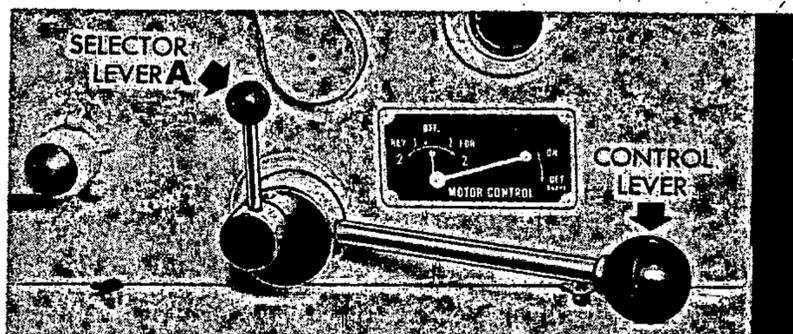


Figure 3

4. Make sure selector lever (A, fig. 3) rotates freely. If binding condition occurs, loosen mounting screws (B, fig. 1) and realign, then tighten screws securely.

5. Hold the small reversing selector lever at the front of the lathe head stock in a vertical position and securely tighten set screw (G) in coupling collar (C) to clamp reversing switch shaft.

IMPORTANT: Be sure set screw (G) is at 90° to slots in coupling.

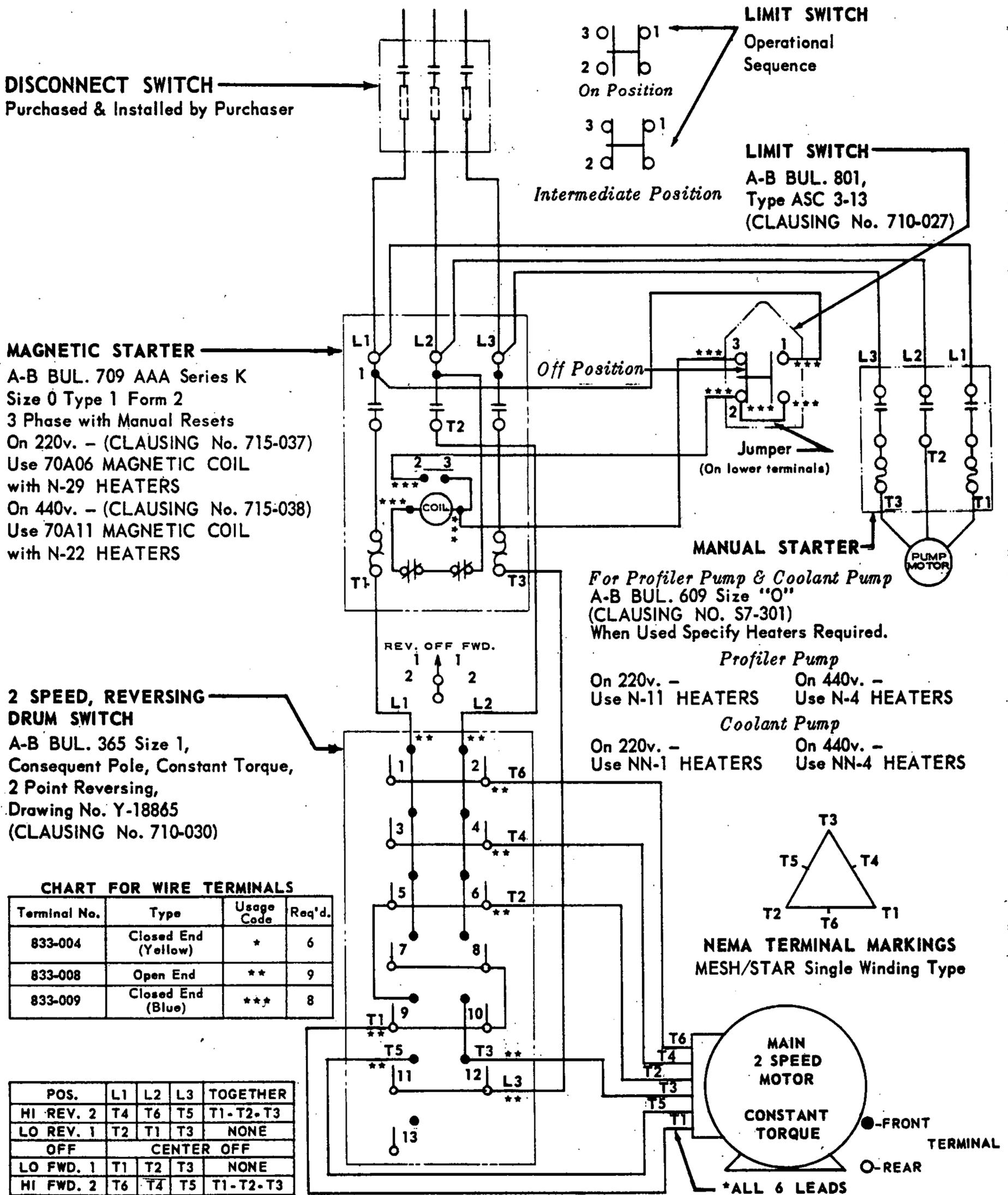
6. Connect the six numbered wires in the conduit from the reversing switch to the corresponding numbered motor leads. Use small screws and nuts, and tape connections.
7. Bring the main electric line into the magnetic starter through a knock out opening in the top of the box and connect the wires to the correct terminals as shown in the wiring diagram inside the switch cover.
8. Make sure red control lever is in "down" or "off" position.
9. Select the speed and direction of spindle rotation desired with the spindle selector lever.
10. Move the red control lever up to start the lathe and motor. To stop the lathe, push the lever down—continue to push the control lever down to operate the brake and quickly stop the spindle.
11. Before changing motor speed or direction of rotation, the control lever must be returned to the "off" position.

NOTE: The limit switch incorporates a safety feature to protect the machine and operator. In the event of an electrical power failure, the lathe cannot be accidentally restarted and will not restart by itself. It is necessary for the operator to return the control lever to the "off" position, and then move the lever to the "on" position to start the lathe.

12. If spindle rotation does not correspond to selector switch notation, interchange any two line leads. If the motor does not start when the control lever is in the "up" or "on" position, or stop in the "down" position, adjust the travel of the limit switch arm on the switch lever by loosening the adjusting nut (H, fig. 1). If the brake lever at the rear of the headstock jams on the threaded end of the brake link, adjust set screw in the bracket on the switch panel to limit travel of the switch lever.

WIRING TO POWER SUPPLY

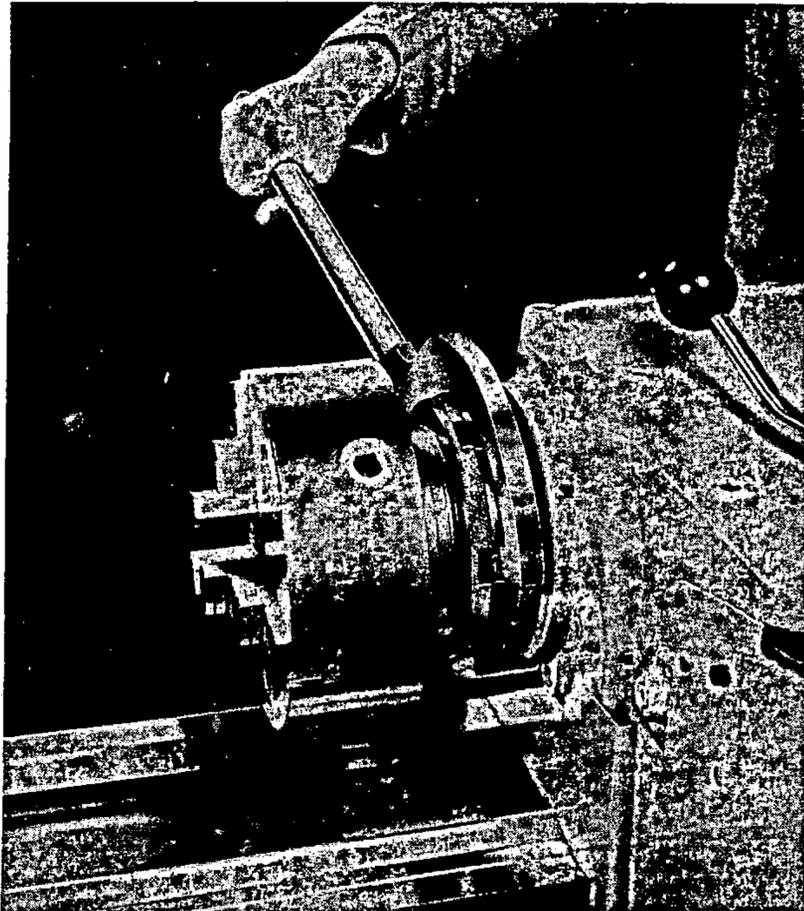
APPLIES TO CLAUSING-COLCHESTER 13" LATHES FROM SERIAL NO. _____ TO _____



CHUCK MOUNTING

The A.S.A. long-taper key drive spindle nose (to LO standard) is incorporated on this machine and has been selected in order to overcome the danger of chuck or faceplate detachment when the spindle is stopped or reversed rapidly.

Before fitting a chuck to the spindle nose, ensure that the centre and centre bush have been removed. Care should be taken to make sure that the taper and the key of the spindle nose, together with the internal tapered bore of the chuck, are scrupulously clean. Any dirt, swarf or burrs on these surfaces will upset the accuracy of the machine, may prevent the correct locking of the chuck on the spindle nose and can cause irremediable damage to the mating surfaces. The spindle nose drawnut engages with the thread on the back of the chuck; and when the drawnut has been screwed up by hand, without trouble, the special spanner wrench supplied with the machine should be used to tighten the drawnut fully. It is advisable to give the stock of the Spanner wrench one or two sharp blows with a mallet to ensure that the drawnut is quite tight. Do not, however, fit extension handles over the spanner wrench for tightening purposes.



NOTE:

Should the chuck remain fitted for any length of time, the locking procedure should be repeated frequently. This is important when the machine is engaged on work which involves intermittent or heavy cutting.

If the chuck is fitted with the spindle nose still warm from operating, it is essential that the drawnut is re-tightened before starting the machine again from a cold condition.

Releasing the drawnut will free the chuck or faceplate from the taper. Care must be taken whenever this is done, however, to ensure that the chuck does not slide off the spindle nose to damage the bed or saddle. It is advisable to obtain assistance each time the chuck is to be removed.

To avoid the possibility of moving the machine from its levelled position, final locking of the chuck or faceplate should be made with the spanner wrench horizontal.

LUBRICATION

Accuracy of the work produced and long, efficient service from your lathe depend to a large extent upon the care and correct attention given to lubrication.

Periodic attention

Before the new machine is put into service all oiling points should be properly lubricated, as indicated on the Lubrication Chart which shows the attention recommended daily, weekly and monthly. It cannot be stressed too highly that all the oiling points marked with a black dot (bedway, leadscrew and spline shaft) should be carefully cleaned and lubricated every working day in order to obtain efficient operation of the lathe.

Before starting work each day run the machine at high speed for a few minutes in order to thoroughly distribute lubricant throughout the gearing. This procedure is also advised when a period of work at slow speeds is anticipated.

Lubricants

When the machine is despatched from the Works the headstock and gearbox are filled to the correct levels with the approved lubricant, as follows:—

Headstock — Shell Tellus Oil 27
Gearbox — Shell Tellus Oil 33

Tellus oils may generally be obtained from Shell Oil Companies and agents throughout the world, but when difficulty is experienced in obtaining these recommended grades the following physical characteristics should be quoted in lubricant orders;

	Tellus Oil 27	Tellus Oil 33
Specific Gravity at 60°F	0.870	0.876
Flash Point closed	390°F	410°F
Pour Point	—20°F	—20°F
Viscosity Redwood No. 1—		
70°F	310 secs	750 secs
140°F	68 secs	112 secs
200°F	41 secs	52 secs

THE USE OF INCORRECT GRADES OF OIL IN THE HEADSTOCK AND GEARBOX IS LIABLE TO CAUSE OVERHEATING AND RESULT IN POSSIBLE DAMAGE.

Oil levels

Oil levels in the headstock and gearbox should be checked every week. When checking the levels at the sight-glass, always stop the machine and allow a period of time for the oil to settle so that a true reading can be obtained. When this procedure is not followed there is a risk of overfilling which may result in the generation of excessive heat and cause oil loss through pressure leakage.

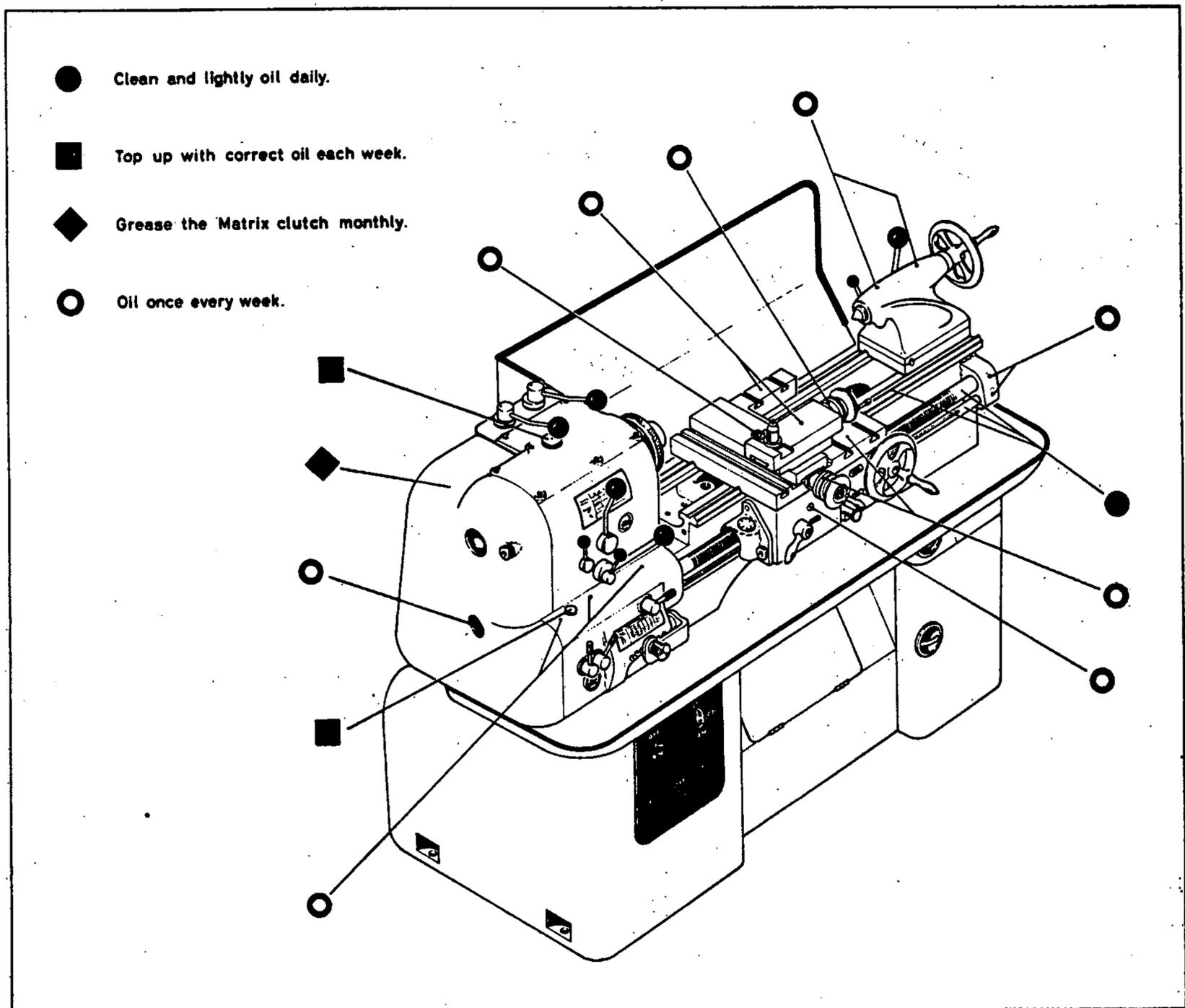
After an initial period of service of between 150 and 200 hours of running, both the headstock and gearbox of your new lathe should be drained, flushed with clean flushing oil and then refilled to the correct level with the recommended lubricant. Thereafter, repeat the draining and oil-change procedure every three months or 500 hours of operation—whichever is the shorter period.

Saddle and Slides

A one-shot lubrication system is fitted in the saddle. Before commencing work each day, depress the lubricator button to send a full supply of oil through the oil channels along the slideways.

An oil level sight glass is provided in the front face of the saddle. At least once every week check the oil reservoir and replenish as necessary with Shell Tellus Oil 33.

LUBRICATION CHART



DRIVE

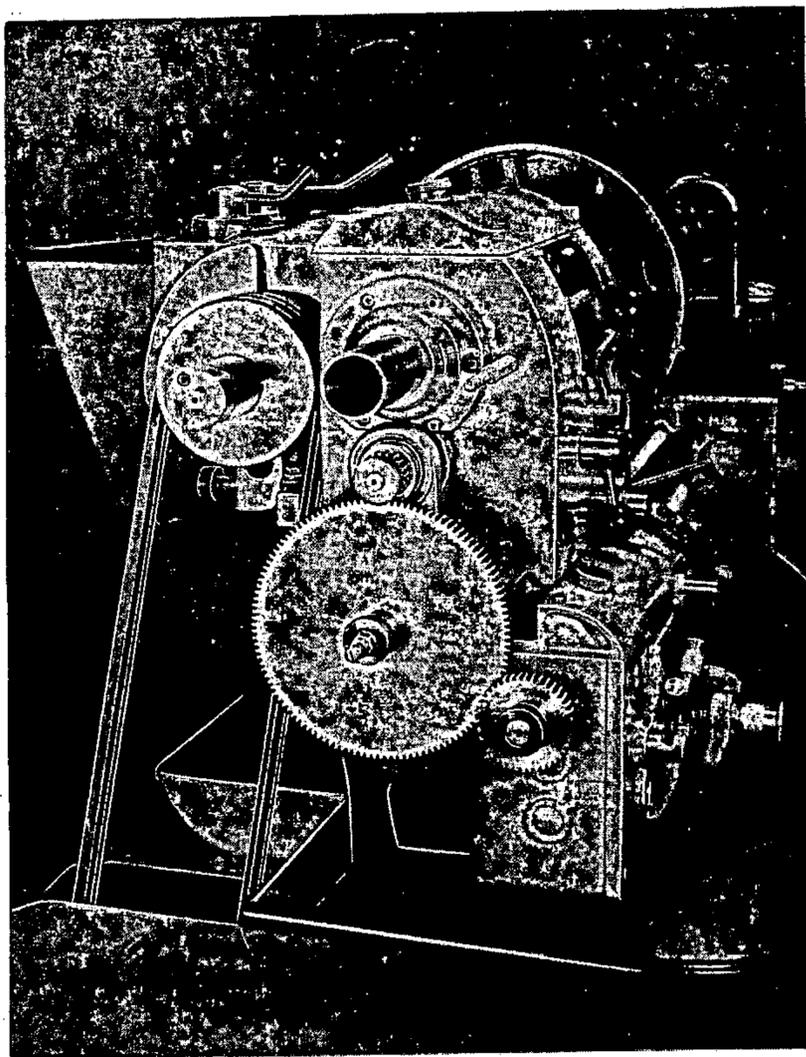
The headstock gear train is driven from a two speed electric motor through standard double vee belts and pulley drives.

When correctly tensioned, belt can be deflected $\frac{3}{4}$ in. when pressed at a point midlength between the motor and headstock pulleys.

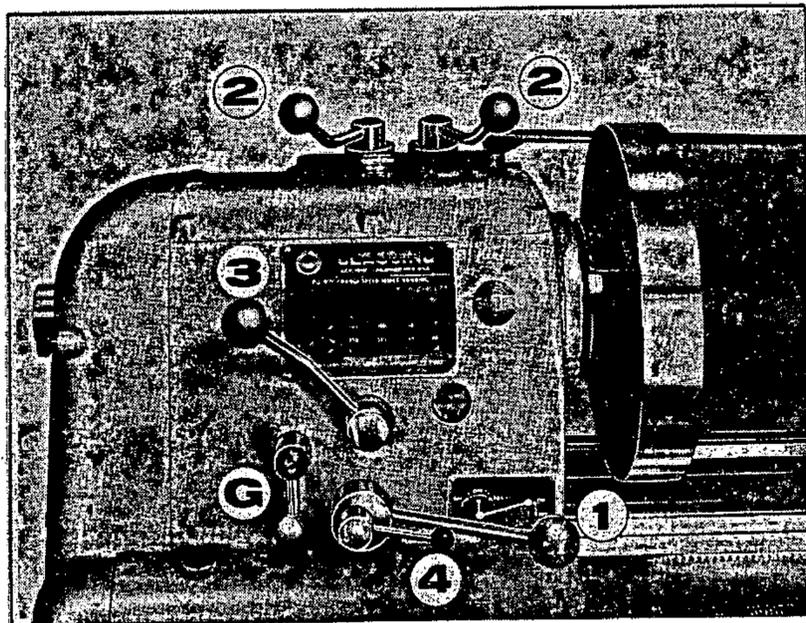
After an initial period of service (between 150 and 200 hours of operation) it may become necessary to re-adjust the tension of the driving belt to eliminate slap, vibration or slip due to belt stretch. Tension adjustment can be made any time by screwing down the two bolts retaining the front of the motor platform. Access to these two bolts is gained from the back of the motor compartment at the headstock end of the machine after removal of the louvred cover panel.

The drive is completely enclosed in an end guard to avoid the possibility of motor failure due to chips or coolant splashing. Removal of the end guard for motor or drive attention will automatically isolate the electric power supply.

DRIVE END GEARS



STARTING



Rotation of the main spindle is controlled from the front of the headstock by means of the starting lever (1). Pull the starting lever upward. This action will start the motor through an air brake starter; the starting lever will remain in this position until it is moved downward to stop spindle rotation.

The starting mechanism incorporates a no-volt release. In the event of an electrical supply failure, the machine can only be restarted by first moving the control lever to the OFF position and then starting in the normal manner. Correct operation of the no-volt release should be checked from time to time, as described in Section ELECTRICAL WIRING.

STOPPING

To stop the spindle, return the starting lever to the original or OFF position. On direct start machines, downward pressure on the starting lever operates a two-shoe Ferodo lined brake inside the driving pulley which causes the spindle to stop instantly. This brake cannot be fitted on lathes having the Matrix clutch.

REVERSE

On machines supplied for operation on 3-phase A.C. supply (only) rotation of the main spindle is readily reversed by means of the finger-tip reversing switch (4) which is inset in the starting lever. Because of the use of the American long taper spindle nose there is no possibility of the chuck or faceplate running off when the spindle is rapidly reversed or stopped; providing, of course, that these have been correctly fitted.

HEADSTOCK SPEED SELECTION

Speed selection is by means of two levers on the top of the headstock (2) and one lever on the front (3). Each lever has two positions, providing eight spindle speeds as shown on the data plate; but this range is increased to sixteen speeds by the use of a two-speed motor. The two-speed control switch for the motor is incorporated into the headstock controls.

Lever positions and a chart of the speeds are shown in the illustration.

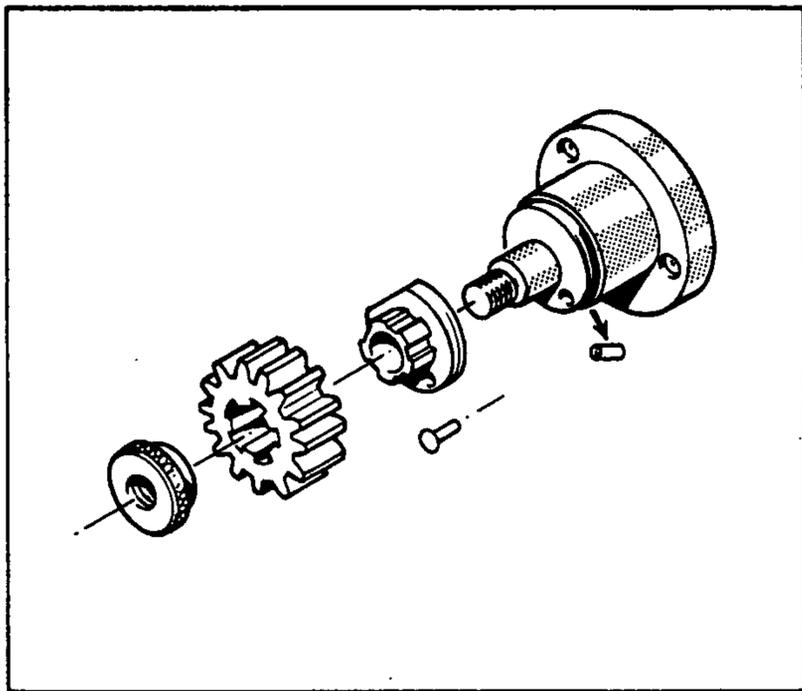
The small lever (G) is used in conjunction with gear-box controls for reversing the direction of feed. THE SPINDLE AND HEADSTOCK GEARING MUST ALWAYS BE STOPPED BEFORE MOVING ANY OF THE CHANGE LEVERS.

 COLCHESTER ATLAS PRESS CO. KALAMAZOO, MICH. U.S.A.		DO NOT CHANGE SPEED WHILE RUNNING			
		SPINDLE SPEEDS PULLEY 2355 & 1175 R.P.M.			
LEVERS ON TOP					
		HIGH SPEED			
LEVER AT FRONT		1800	750	307	127
		1140	472	195	81
		LOW SPEED			
LEVER AT FRONT		900	375	153	64
		570	236	98	40
USE SHELL TELLUS OIL 27 OBTAINABLE FROM SHELL OIL COMPANIES THROUGHOUT THE WORLD THE COLCHESTER LATHE CO LTD ENGLAND					

SWING FRAME

The drive from headstock to gearbox is transmitted through the train of gears on the end of the headstock, enclosed by the end cover.

The gears are fitted to a swing frame assembly which is readily adjustable to accommodate the full range of change gears available for each particular machine (see also Section GEARBOX). At each of the gear spindles a knurled handnut is fitted to enable gear wheels to be rapidly interchanged when required. Be sure to tighten the handnuts after fitting each gear wheel.



A shear pin safety device is fitted as a measure to protect against overload when screwcutting. A shear pin can be replaced easily by removing the top gear in the train, then the splined sleeve which carries the gear. The broken portion of pin may then be tapped out of the sleeve, from the side opposite to the splines. To remove the other broken portion, the shaft should be rotated until the pin hole is opposite the slot in the housing and swing frame then the broken pin may be knocked straight through and will drop out through the slot. A new pin can then be inserted and the top gear and sleeve re-assembled. When the end guard is opened the electric supply is automatically isolated by a micro-switch in the headstock.

NOTE:—The leadscrew should never be allowed to revolve except when screwcutting; it should be cleaned and lightly oiled each time before use.

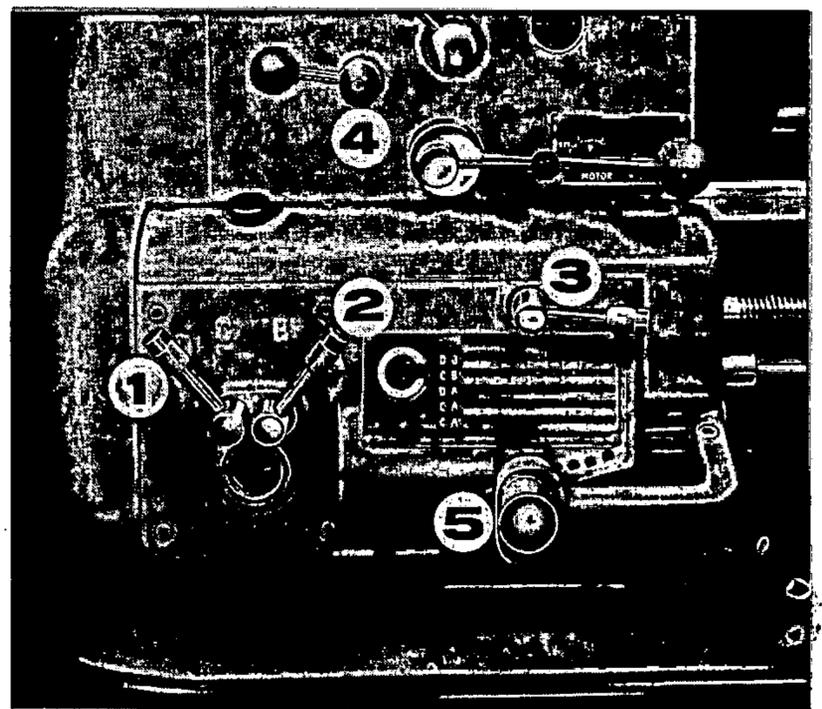
GEARBOX

The standard gearbox covers a range of 45 feeds and threads (including 11½ and 23 t.p.i.) but does not provide metric threads. The full range of feeds and threads available are shown in the reproduction of the machine data plates.

Control of the gearbox is by means of four levers (1, 2, 3 and 4 in the illustration) and the tumbler shaft (5). The tumbler shaft is provided with a spring-loaded plunger which engages with holes in the front of the gearbox cover to provide positive positioning and locking. The two selector levers (1) and (2) at the left-hand end of the gearbox each have two positions (A or B) and (C or D) and by manipulating these two levers in conjunction with the tumbler arm a range of 36 feeds and threads can be obtained. The remaining 9 feeds and threads of the total 45 are obtainable by substituting a 42T change gear for the 21T gear on the top driver position and re-meshing the train. This 42T change gear is supplied stowed alongside the 35T change gear on the gearbox driving shaft.

SPINDLE AND HEADSTOCK GEARING MUST BE STOPPED BEFORE ANY OF THE LEVERS CONTROLLING THE GEARBOX ARE MOVED.

A third lever (3) disengages the leadscrew when this is not actually required for screwcutting. A lever (4) situated high on the front of the headstock controls direction of the feeds, reversing them as required.



THREAD CUTTING

1. Threads available from the gearbox

The screwcutting dial on the apron has four numbered divisions and four sub-divisions marked on its surface, clearly visible from the operating position. The housing carrying this dial is located to the side of the apron and is retained in position by a knurled handscrew. When not required for use it may be swung out of contact with the leadscrew, since it is only employed when screwcutting is actually carried out.

To cut an even number of threads per inch (e.g. 12 t.p.i., 14 t.p.i.) the leadnut may be engaged at any division on the dial. For cutting an odd number of threads per inch (e.g. 13 t.p.i.) the leadnut must be engaged only on the numbered divisions. For fractional threads (e.g. $4\frac{3}{4}$ t.p.i.) the leadnut must only be engaged at the division marked 1 on the dial.

When engaging the leadnut, care should be taken to ensure that the appropriate dial division coincides exactly with the fixed point on each pass.

The settings of gear box levers for the threads available from each gearbox are shown on the machine data plates which are reproduced in Section GEAR-BOX.

2. Threads not available from the gearbox

To cut special and multi-start threads which are not immediately available from the gearbox, it is necessary to use special change gears which are obtainable as extra equipment. For calculating the number of teeth in the required gears the following formula should be used:

$$\text{Thread to be cut} = \frac{3 \times X \times Y}{10 \times T} = \frac{\text{Driver gear}}{\text{Driven gear}}$$

Where X = hole in feed box (see sketch below)

Y = 1 with selector levers on A C

2 with selector levers on A D

4 with selector levers on B C

8 with selector levers on B D

and T = Number of threads per inch to be cut

Values for X are as follows:—

0 0 0 0 0 0 0 0 0
28 26 24 23 22 20 19 18 16

Example

It is required to cut 27 t.p.i.

The values of X and Y may be chosen from any of the relevant numbers given above; and there is no rule about the choice. If the values selected give impossible numbers of teeth, try other values of X

and Y and continue so doing until a practicable result is obtained.

Setting up gear train (27 t.p.i.)

1. Remove gear from headstock spindle.
2. Loosen swingframe (quadrant) locking nut located between swing frame and end of bed. Swing quadrant until 120T idler gear is out of mesh with gear on gearbox shaft.
3. Loosen idler gear stud nut located on inside of quadrant, slide 120T idler gear away from headstock spindle.
4. Select the proper gear for headstock spindle position (i.e. 28T as example). Place gear in position on spindle and secure in place.
5. Slide 120T idler gear up until properly meshed with gear on headstock spindle and secure in place. For correct mesh; place piece of heavy wrapping paper (.005 in. thick) between teeth of meshing gears, tighten gears in position and remove paper.
6. Check gear in position on gearbox spindle. For obtaining 27 t.p.i. it should be 35T gear.
7. Swing quadrant so 120T idler gear is in proper mesh with gear on gearbox shaft. Tighten in place.
8. Set gearbox levers properly, as shown on the data plate (left hand to C, right hand to B) and position tumbler to cut 36 t.p.i.
9. Check gear set-up by cutting 27 t.p.i. on scrap stock.
In the case of 27 t.p.i. = $\frac{3 \times 18 \times 4}{10 \times 27} = \frac{28}{35}$ = Driver Driven

LEVERS		THREADS PER INCH										
		SLIDING FEEDS IN INCHES- SURFACING $\frac{1}{2}$ SLIDING										
D	B	112	104	96	92	88	80	76	72	64		
		.0025	.0025	.003	.003	.003	.0035	.0035	.004	.0045		
C	B	56	52	48	46	44	40	38	36	32		
		.005	.005	.006	.006	.006	.007	.007	.008	.009		
D	A	28	26	24	23	22	20	19	18	16		
		.010	.011	.012	.012	.013	.014	.015	.016	.017		
C	A	14	13	12	11 $\frac{1}{2}$	11	10	9 $\frac{1}{2}$	9	8		
		.020	.021	.023	.024	.025	.027	.029	.031	.034		
WHEN USING 42⁷ DRIVER GEAR		C	A	7	6 $\frac{1}{2}$	6	5 $\frac{3}{4}$	5 $\frac{1}{2}$	5	4 $\frac{3}{4}$	4 $\frac{1}{2}$	4
				.039	.042	.045	.048	.050	.055	.058	.061	.068

FILL WITH SHELL TELLUS OIL 33 TO MARK ON SIGHT GLASS
OIL OBTAINABLE FROM SHELL OIL COMPANIES THROUGHOUT THE WORLD

Metric Thread Cutting

Compounding of the quadrant idler gear is necessary for cutting all 21 available metric threads. For this machine replace the 120T idler with a compound 127T and 120T idlers on the quadrant.

- Loosen quadrant locking nut located between quadrant and end of bed. Swing quadrant until 120T gear is out of mesh with gear on feedbox shaft.
- Loosen idler gear stud nut located on inside of quadrant. Slide 120T gear away from gear on headstock shaft. Select proper gear for headstock shaft from chart, place gear in position and tighten knurled nut.
- Remove 120T idler gear from brass sleeve. Place 127T gear on brass sleeve followed by 120T gear. Slide sleeve with compound 127T/120T gears on idler gear stud; be sure 127T gear is next to quadrant.
- Slide 127T/120T gear up until 127T gear meshes with selected gear in position on headstock shaft. For correct mesh, place strip of heavy wrapping paper (.005 in. thick) between teeth of meshing gears. Paper should fit tight between gears. Lock gear stud in place and remove paper.
- Place 21T gear in position on feedbox shaft next to feedbox. This gear is used as spacer only.
- Select proper gear for this shaft position from chart. It will be 30T, 35T or 42T only. Place gear in position next to 21T gear spacer. Tighten in place.
- Swing quadrant until 120T gear meshes with outer gear on feedbox shaft. Check gear mesh (step 4) and tighten quadrant locking nut.
- Position feedbox levers as shown in chart. Check gear setup by cutting thread on scrap stock.

NOTE:

When cutting metric threads, THE THREADING DIAL CANNOT BE USED. Close half-nut for first cut, then reverse lathe to return carriage for each succeeding pass until thread is completed.

M/M Pitch	DRIVER (Top)	DRIVEN (Bottom)	LEVER		TUMBLER
			L.H.	R.H.	
0.25*	21T	35T	D	B	3
0.35*	21T	30T	D	B	6
0.5	42T	35T	D	B	3
0.6	42T	35T	D	B	6
0.7	42T	30T	D	B	6
0.75	42T	35T	D	B	9
0.9	27T	30T	C	B	6
1.0	42T	35T	C	B	3
1.25†	42T	42T	C	B	9
1.5	42T	35T	C	B	9
1.75	42T	30T	C	B	9
2.0	42T	35T	D	A	3
2.5†	42T	42T	D	A	9
0.3	42T	35T	D	A	9
3.5	42T	30T	D	A	9
4.0	42T	35T	C	A	3
4.5	27T	30T	C	A	9
5.0†	42T	42T	C	A	9
5.5	33T	30T	C	A	9
6.0	42T	35T	C	A	9
7.0	42T	30T	C	A	9

NOTE:

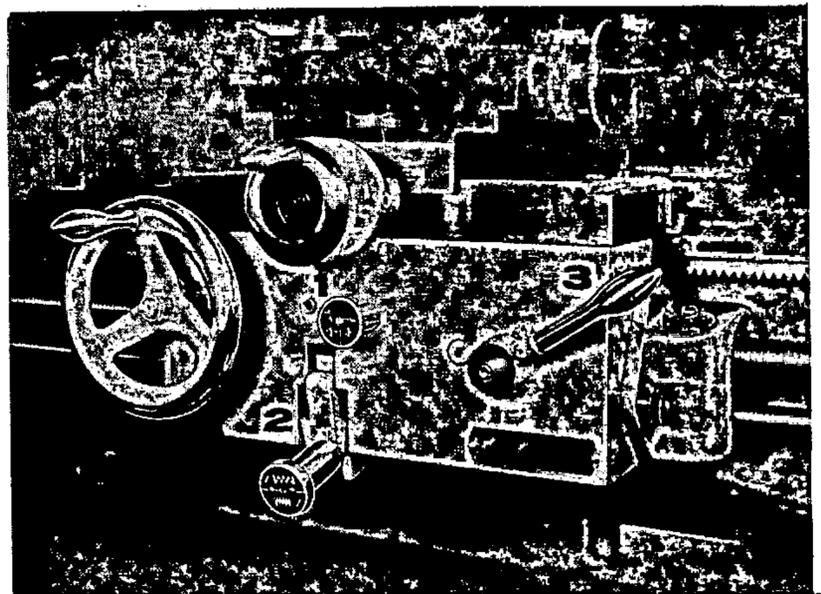
† For these threads an extra 42T gear is required.

* For these threads a spacer No. M1-565 ($\frac{1}{2}$ " wide x $\frac{7}{8}$ " Bore) is required in place of 21T gear at bottom position.

APRON

Longitudinal and cross-feeds are selected by means of a plunger (1) shown in the illustration. Longitudinal feeds are obtained with the plunger fully extended; cross-feeds with the plunger fully depressed. A central or neutral position is also provided which is selected when neither longitudinal nor cross-feed is required.

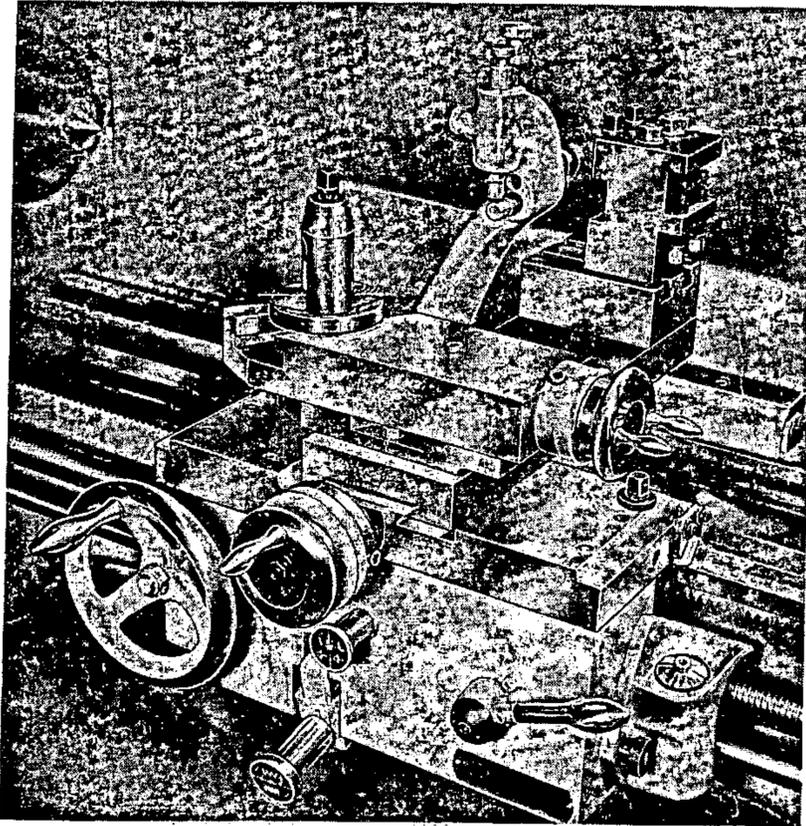
The feeds are engaged by lever (2) which incorporates a safety device to prevent overloading. This mechanism is pre-set at the Works to trip out at 400 lb end pressure. It should give long, trouble-free service.



SADDLE AND SLIDES

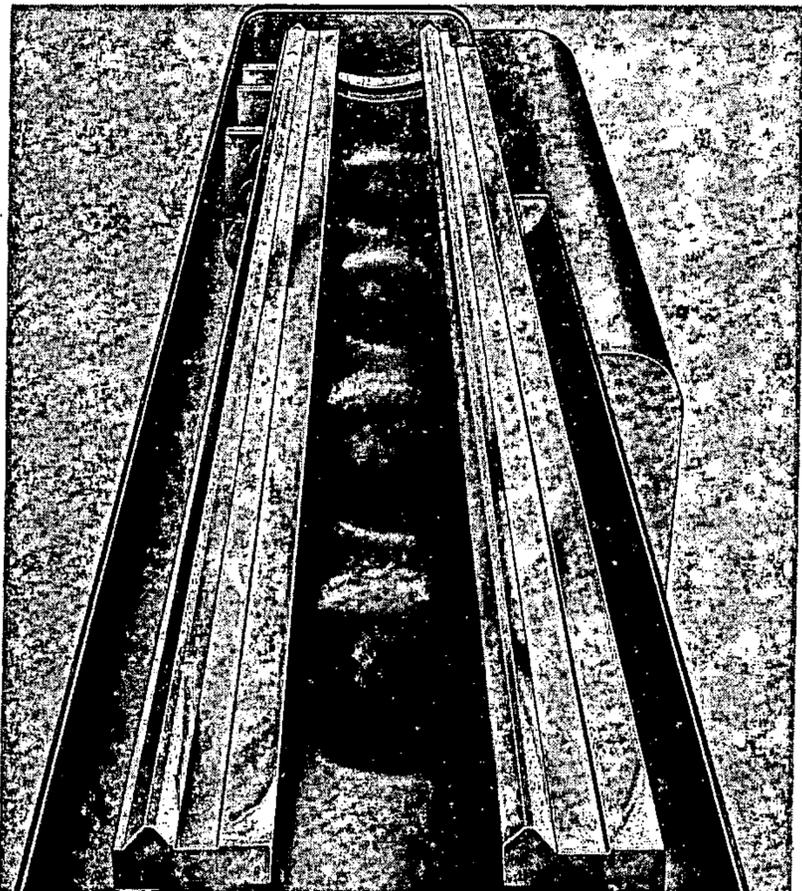
The saddle is of American winged type. It is secured to the bed by means of adjustable keep strips at front and rear and can be locked in any position on the bed by means of a locking clamp. The cross slide is graduated radially 90°-0-90° each side for accurate setting of the compound slide. Large diameter micrometer dials are graduated in 0.001 in. divisions on both the slides.

An American pillar-type toolpost is fitted as standard, intended for tools up to $\frac{3}{8}$ in. \times $1\frac{1}{8}$ in.



The Bed

All lathe beds are induction hardened and ground on working surfaces. To remove the detachable gap-piece on gap bed machines, simply unscrew the four cap-head screws. No dowels are fitted.

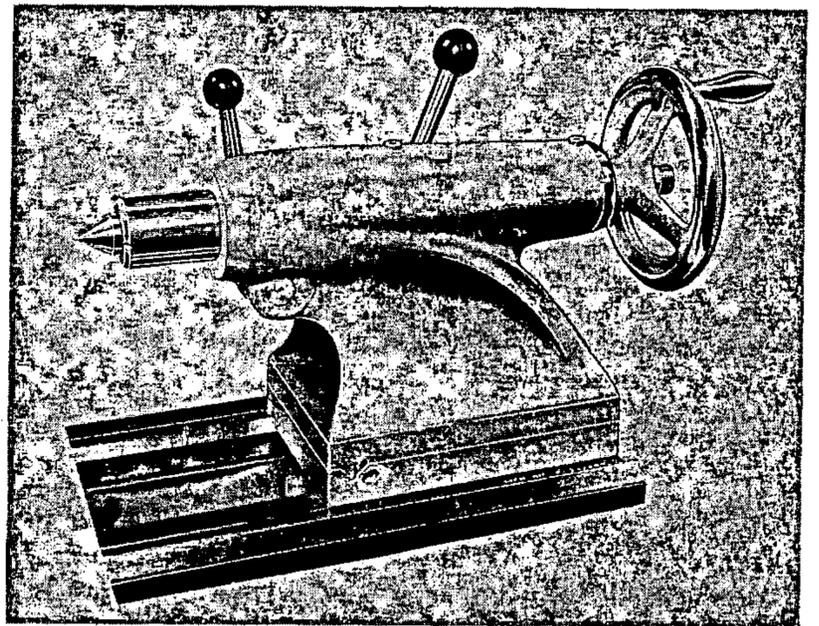


When refitting the gap-piece, first clean off the block and locating faces most thoroughly. Then fit the gap-piece in position and locate the four screws (two vertically from the top, two horizontally). Now bring up the saddle to give an approximate alignment and tighten the screws lightly. If the mating faces are properly clean the gap-piece may now be aligned exactly by a few taps in the required direction using a hide-faced mallet. Finally tighten the retaining screws securely.

The lathe bed should be cleaned down as often as possible to keep it free from chips. Use a brush for all cleaning; do not use an airblast which can drive chips under the sliding surfaces and may, also, blow away the protective oil film from working surfaces. After cleaning down, the bed should be coated with Shell Tellus Oil 33 to prevent formation of rust.

TAILSTOCK

The barrel is graduated in inch divisions and induction-hardened in the Morse taper bore and on the outside diameter. All standard tang drills are driven by the tang and eject at zero graduation. A tool-height indicator line is marked on the front face of the nose chamfer to assist in setting tools to correct centre height when a workpiece is set up between centres. There are two parts to the tailstock body casting; the base proper, which slides along the bedways, and the tailstock body which may be moved laterally on the base. This movement or 'setting over' allows shallow tapers to be turned without need for a special taper attachment; maximum set over is $\frac{1}{4}$ in. each side of the centre line, a graduated scale is marked on the rear face of the tailstock casting. The tailstock is set over by first releasing the bedway clamping lever and then adjusting the two set-over screws fitted in the base (one at each side) for this purpose.



THE TWO SPRING-LOADED SHOULDER BOLTS HOLDING THE BASE TO THE BODY DO NOT REQUIRE SLACKENING AT ANY TIME.

Quick lever clamping is employed to lock the tailstock in position on the bedways. The tailstock barrel is locked at the required setting by a lever-operated clamp.

ACCESSORIES

A comprehensive range of accessories is available for the Clausing-Colchester lathe, specifically designed for the machine and engineered for robust service and reliability.

A brief list of these is given below and more detailed information on certain items is given in subsequent pages. All accessories listed can be fitted to the machine after it has left the Works.

Description	Code
3-jaw Universal scroll chuck—7½ in.	13-201
4-jaw Independent chuck—10 in.	13-202
18 in. Faceplate (gap bed lathes only)	13-203
Coolant system	13-208
Reversing switch	13-212
Steady rest	13-210
One-position carriage stop	13-214
Five-position carriage stop	13-216
Rear toolpost	13-217
Chuck backplate	13-218
Telescopic taper attachment	13-213
High-speed threading unit	13-227
Rotating centre	13-215
Hex bed turret	13-651
Micro carriage stop	13-2000
Turret toolpost	13-4½-S
Hydraulic profiling attachments	
(13 in x 24 in lathes)	13-230
(13 in x 36 in lathes)	13-231

COOLANT SYSTEM

The cabinet base has a built-in storage tank with a pump fitting position already provided. A pipe in the centre of the tray returns coolant to the tank and a gauze strainer is fitted to the pipe at tray level to prevent swarf and chips from entering the sump.

The jointed piping supplied with this unit is fully universal and will feed coolant to any required position. Supply of coolant is easily controlled by a ball-type shut-off valve. The whole system has been designed to eliminate the leaks usually inherent in other coolant systems. Capacity of the unit is 5½ gallons. An electric pump of robust and reliable design is available and is wired into the main electrical panel at the main switch (see Wiring Diagram). The pump motor should never be run if the coolant sump is dry. The sump should be cleaned at frequent intervals and refilled with fresh coolant. Precautions should be taken when refilling to avoid splashing the coolant over the pump.

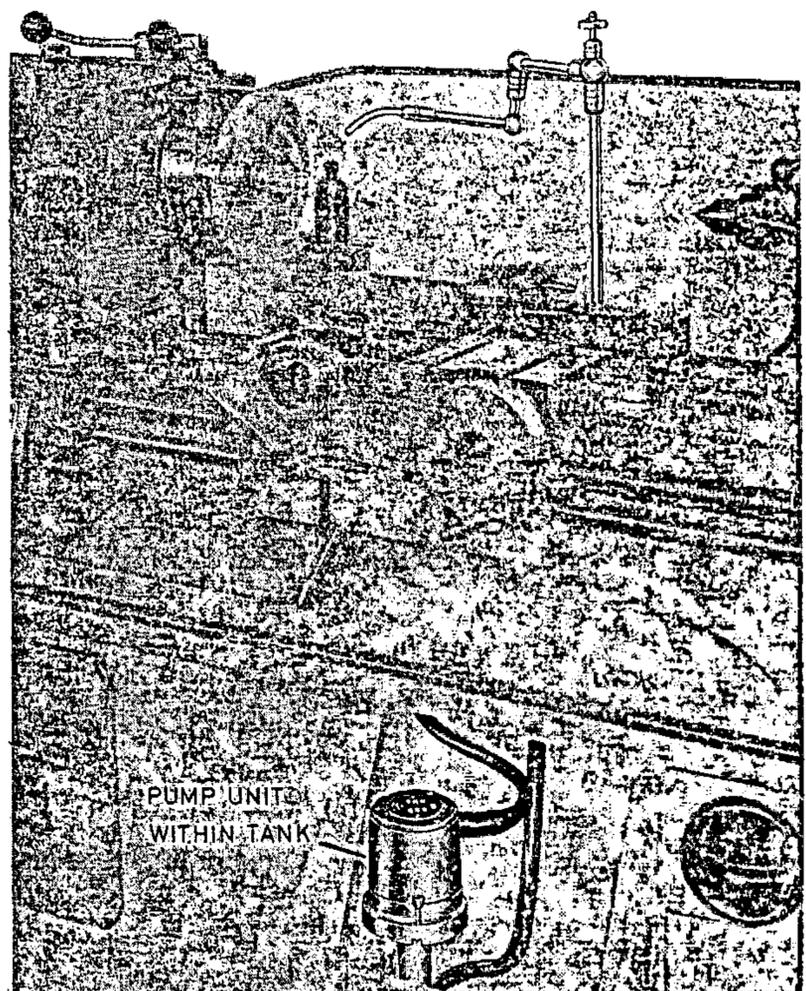
Soluble oil emulsions

For most work a soluble oil emulsion will be chosen, since this will almost always be adequate for the work in hand, and preferred by the machine operator. When screwing with a die-head, tapping, or reaming, some extra coolant applied locally may be required. If much work of this type is contemplated, it may be better to use an emulsion of an extreme pressure soluble oil in the machine tank. A good quality oil of this type will give results equal to neat cutting oil whilst retaining the cleanliness of soluble oil.

Good quality soluble oils should always be chosen and mixed in accordance with the suppliers' recommendations. The following grades have been tested and used in our own works with complete satisfaction:-
Shell Dromus Oil B—conventional milky soluble oil mixed with water in the ratio 25/30:1.

Shell Dromus Oil D—translucent soluble oil mixed with water in the ratio 40:1.

Shell Dromus Oil 908—extreme pressure oil mixed with water in the ratio 10/15:1.



Soluble oils and machine maintenance

No soluble oil emulsion, however good, can completely prevent rust without help from the operator. The machine should therefore be cleaned down regularly and bright parts wiped over with machine oil. It should never be left, especially over weekends or holidays, with wet swarf on the bed or slides. When the work in hand requires the saddle or tailstock to be clamped in one position for long periods it is advisable to spread a little machine oil on the bed beforehand to ensure a film of oil between the surfaces.

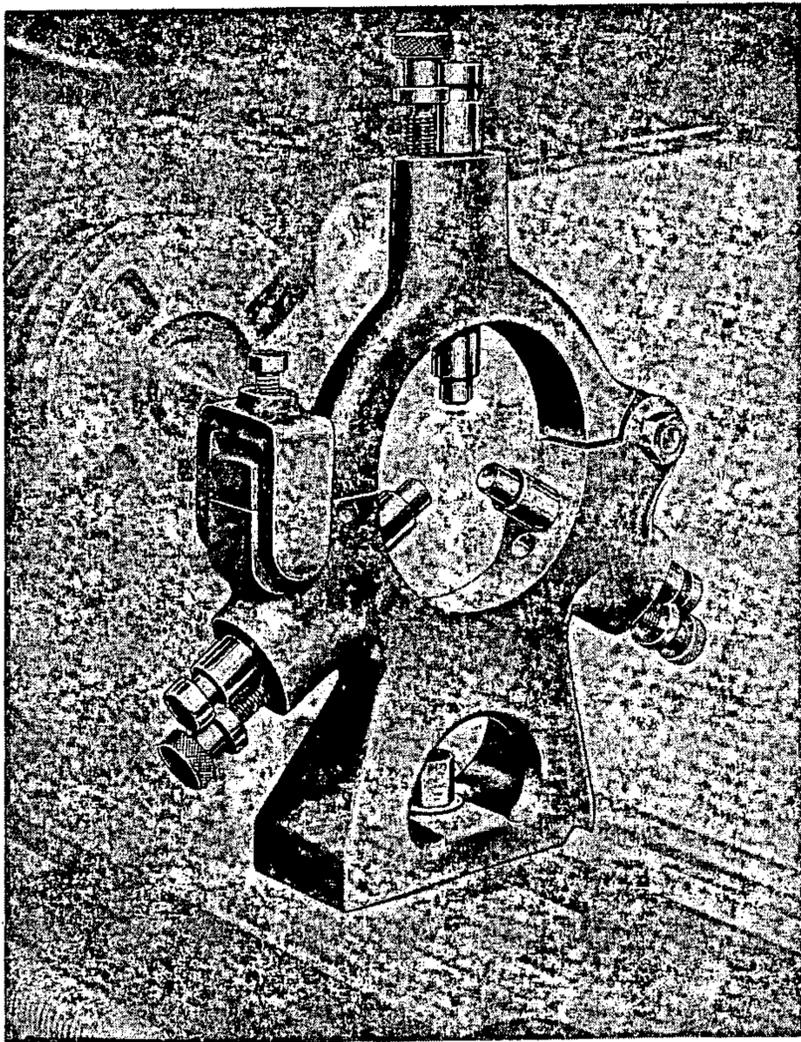
The tank should be emptied, cleaned out and re-filled with fresh soluble oil at regular intervals.

STEADY REST

Of extremely rigid design, this attachment is very easily opened and set. Three adjustable fingers are provided, and the maximum capacity is 4 in. bar diameter.

Inserts are of sintered bronze and quickly replaced, being a press fit into the ends of the fingers.

The whole attachment is readily attached to the bed by a clamp bolt, and can be removed very rapidly when not required for use.



REAR TOOLPOST

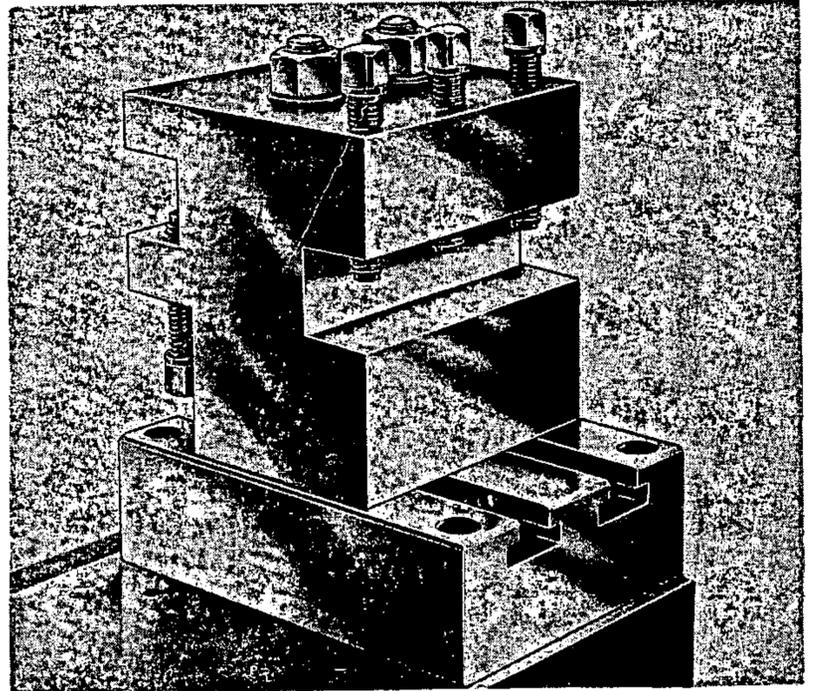
As an aid to production, a rear toolpost is available for fitting direct to the cross slide, which is drilled and tapped ready to receive it.

Two tool positions are provided so the tool may be fitted either in conventional manner, or in the inverted position.

Using this tool post (with the tool fitted in conventional manner) left hand threads can be easily cut.

Supplied complete with all necessary fixing screws, the only fitting required is the physical bolting of base pad to cross slide. Tee slots are provided in the base pad so that the toolpost may be adjusted in position

on the base. Maximum tool depths that can be accommodated in either position are $\frac{5}{8}$ in. Standard wrenches and Allen keys supplied with the machine will fit all the nuts and screws in this assembly.

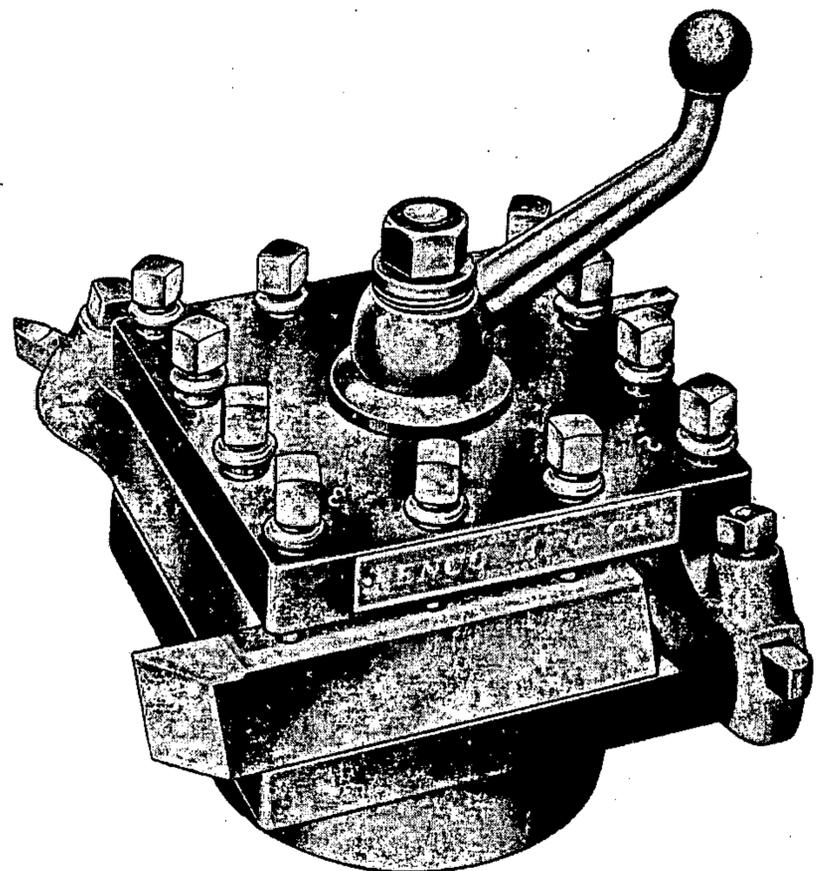


SQUARE TURRET TOOLPOST

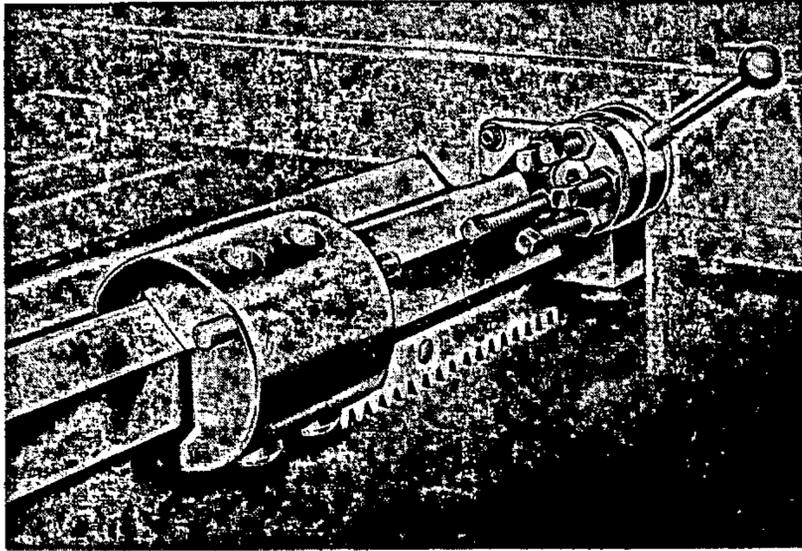
To index the toolpost into any of four operating positions, the central hand lever is moved in an anti-clockwise direction until distinct detents are felt. This indicates that the plunger mechanism has released the locating plunger and the indexing mechanism is engaged. When the central hand lever is returned in a clockwise direction the turret will index into the next position. A further short movement of the lever in the same direction will lock turret block to topslide.

Using the retracting plunger method of indexing, the turret block remains close on its bottom face whilst being indexed, which effectively prevents entry of chips between the locating faces. The turret block can also be swung into any position without use of the indexing mechanism.

The turret block will accommodate up to four tools or toolholders having a height up to $\frac{3}{4}$ in.



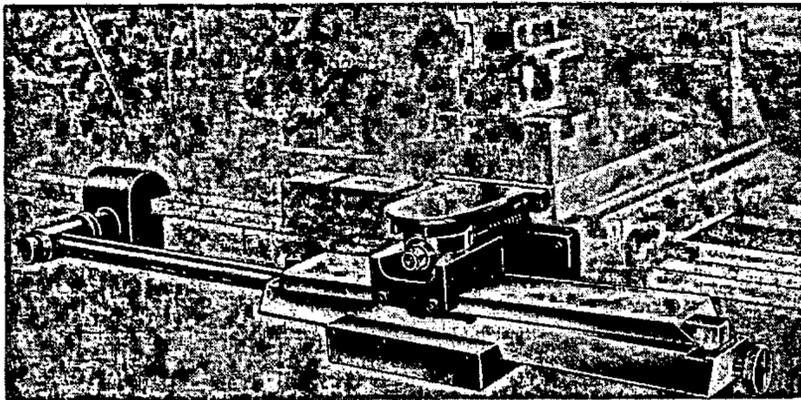
BED STOPS



To provide accurate and reliable means of repeating shoulder lengths, a single-type bed stop or five-position turret type bed stop are available as extra equipment. With these units, the saddle may be stopped in any desired position without detrimental effect on the feed mechanism.

A micro carriage stop is also available, for clamping on the front of the bedway. Micrometer control is graduated in 0.001 divisions. Hardened stop locks securely in any position.

TELESCOPIC TAPER TURNER



This attachment can be used for producing tapers up to 10° in either direction.

It can be mounted directly onto the rear of the saddle without any modification other than the fitting of a new saddle screw and nut which is supplied with the unit.

The swivel slide is graduated in $\frac{1}{4}^\circ$ of arc and in $\frac{1}{8}$ in. taper per foot and great sensitivity of control is obtained when setting a taper by the use of the micro adjustment screw.

The cross slide handwheel is always used to control the tool and the base slide can be adjusted along the bed so that the taper may be cut in any position.

The attachment will deal with a length of 10 in. of taper at any one setting.

After attaching to the machine, all that is required to prepare the taper turner for use is the clamping of the connecting rod in the anchor bracket by means of the Caphead Allen screw

The fitting of this attachment in no way detracts from the use of the machine as a normal centre lathe. Change over can be accomplished simply by loosening the connecting rod clamping screw and traversing the saddle towards the headstock to disengage the connecting rod from the clamp. Then remove the anchor bracket from the bed so that there is no obstruction to foul the connecting rod. By replacing the bracket and engaging the connecting rod, the taper turner is rapidly reset for use.

Great care should be taken when re-adjusting or altering the fit of the base slide in the taper turner bracket, as any slackness will result in incorrect tapers.

To fit the taper turner:

1. The saddle and cross slide are ready drilled to receive the attachment, the necessary holes being drilled and tapped during manufacture.
2. Clean down the rear end of the saddle to receive the taper turner bracket.
3. Release the locknut in the centre of the cross slide handwheel.
4. Slide the cross slide to the rear of the saddle.
5. Remove the saddle screw nut fixing bolt and withdraw the screw and nut from the rear end.
6. Insert the taper turner saddle screw and nut and secure the nut with the fixing bolt.
7. Pull the cross slide forward and engage the saddle screw in the handwheel pinion. (NOTE: The lock nut from the original saddle screw is not replaced, but should be retained in case it is needed when refitting the original screw.)
8. The slide block assembly can now be fitted to the thrust block on the rear of the saddle screw assembly. Engage the slides in the bracket and the slide block assembly on the slides. This will enable the bracket to be bolted to the rear of the saddle using the pre-tapped holes provided.
9. Finally, bolt the bottom slide extension piece to the rear of the bottom slide. Fit the connecting rod to the taper turner slide and the connecting rod clamp to the machined face on the back of the bed.

HYDRAULIC PROFILER

COLCHESTER SERIES '300' HYDRAULIC PROFILING UNIT

Designed to permit faster and more accurate profiling, this unit can be fitted at any time to Colchester lathes without modification or alteration of the machine. The standard equipment unit comprises four basic sub-units; profile slide, tool box, the rear beam and tail-stock units (suitable for round or flat masters or models) and a free-standing hydraulic power unit complete with a set of hoses. Two further units are available as additional equipment; a turret stop assembly and a facing beam; both of which are described subsequently.

Profile slide

Mounted directly on the rear of the lathe cross slide, this is an integral unit comprising the operating cylinder, cartridge-type servo valve, stylus lever mechanism and a swivelling Colchester Multi-type toolpost complete with one turning tool holder.

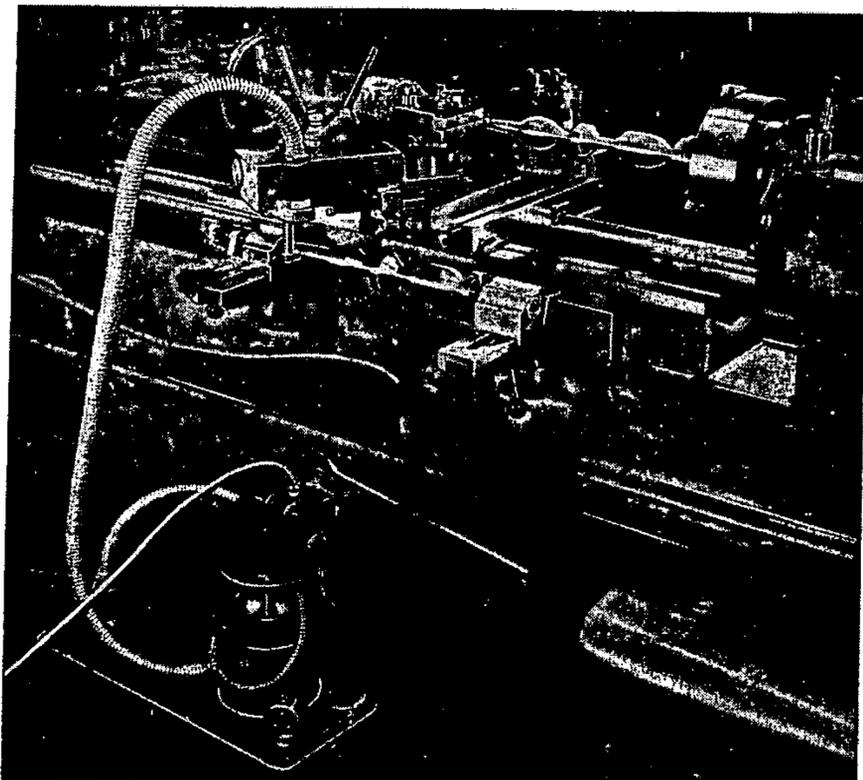
The complete unit can be fitted in four alternative positions; at 90°, 60°, 30° or parallel to the centre-line of the lathe. Maximum and minimum profiling angles obtainable for each of these positions are shown on the installation drawing overleaf. A copying accuracy of ± 0.0005 in. (0.01 mm) can be achieved; the change in copy diameter at 90° is $\frac{1}{2}$ in. (140 mm) and at 60° is 5 in. (127 mm).

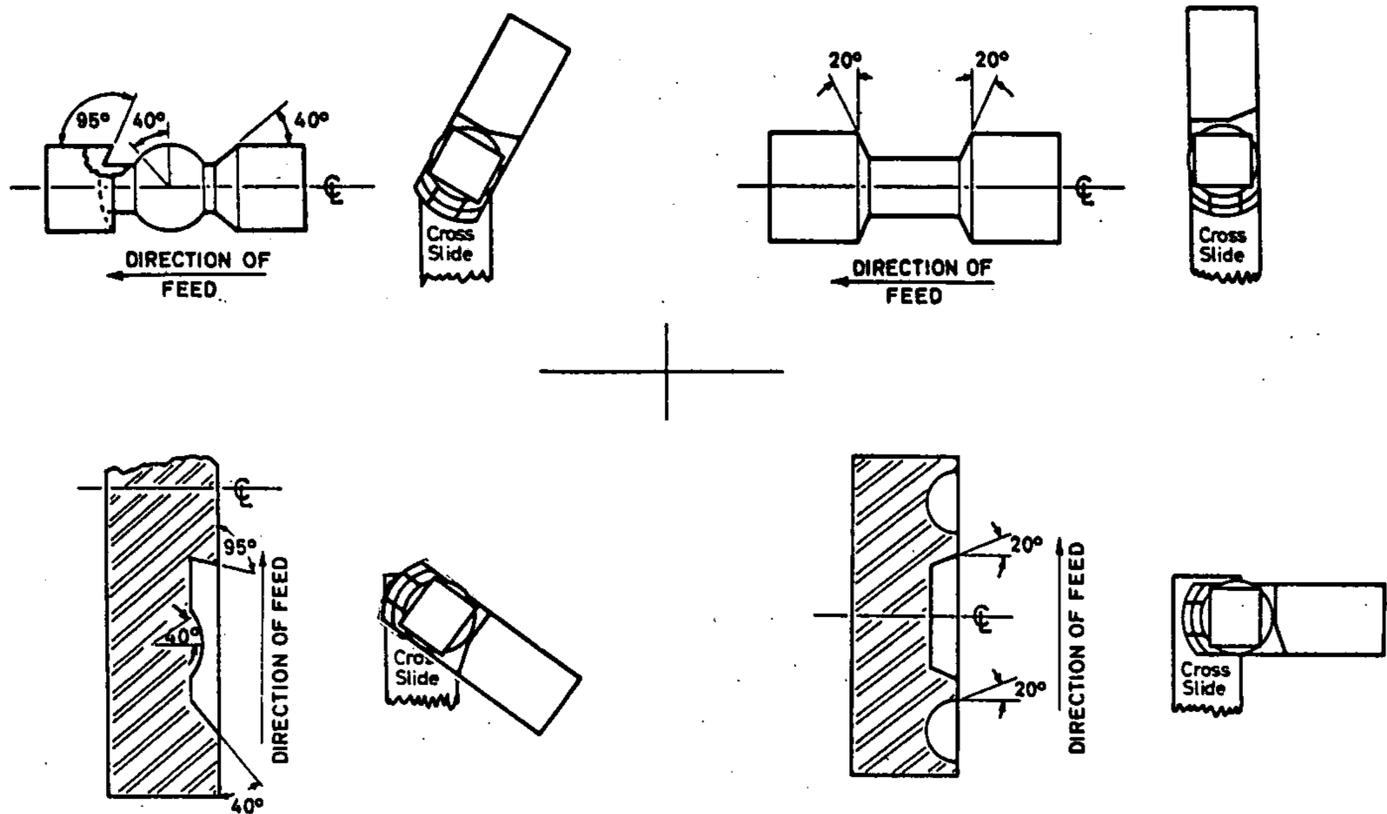
The main control valve is a self-contained cartridge unit secured into the profile slide casting. The stylus is mounted on the lower end of the stylus lever shaft which is retained in the outer end of the stylus lever. Height and angle of the stylus in relation to the model master is easily adjusted by hand after releasing the clamp bolt. A combined ON/OFF lever and forward feed-velocity control is mounted on top of the slide assembly. The ram has a stroke of 3 in. (76 mm) and maximum approach/retraction speed of 110 in. (279 mm) per minute. The low stylus pressure of only 6 oz. (17 g) permits soft masters or models to be used, if necessary.

Toolbox

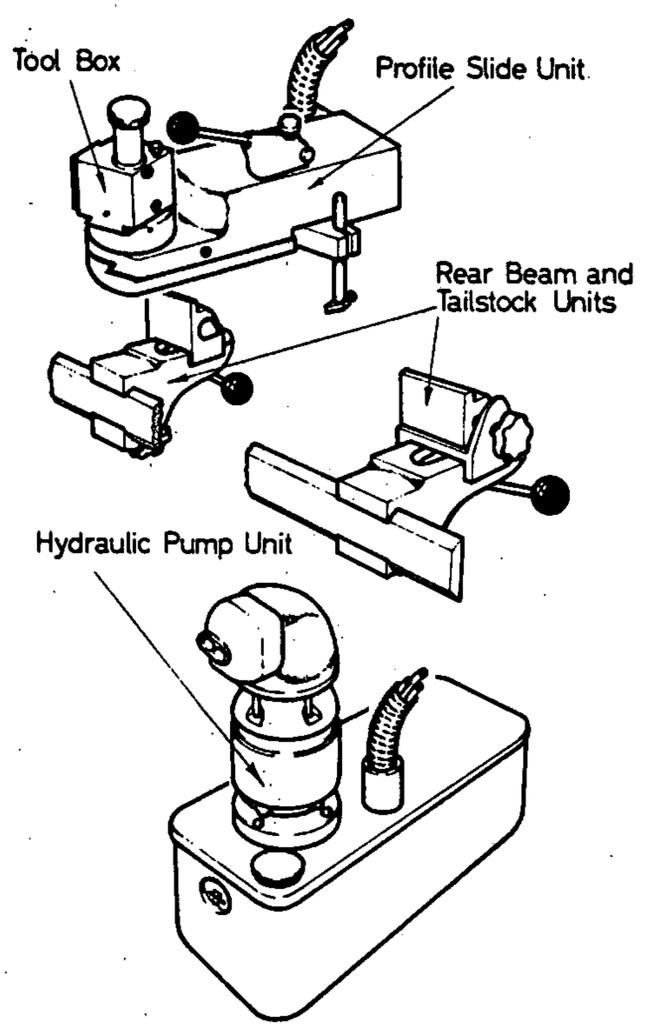
A swivelling Colchester Multi-type toolpost allows all tooling to be pre-set and enables all such tool changes to be made rapidly without the necessity for re-setting the slide assembly. Sufficient height adjustment is provided to permit the tool to be set up for forward or reverse cutting. Tools are carried in interchangeable toolholders; and when each tool has once been set to centre height it may be removed and replaced any number of times without alteration of the setting.

The toolbox is fitted on a base plate located at the front of the profile slide unit and can be mounted at four alternative positions, governed by the angle of the slide unit to the centre line of the machine. An adjusting handwheel is fitted which, through spiral gearing, provides micrometer control of the depth of cut up to $\frac{1}{2}$ in. (13 mm) movement of the tool box along the base slide. Three alternative sizes of toolbox base slides are available, dependent upon the size of the machine to which the unit is fitted.

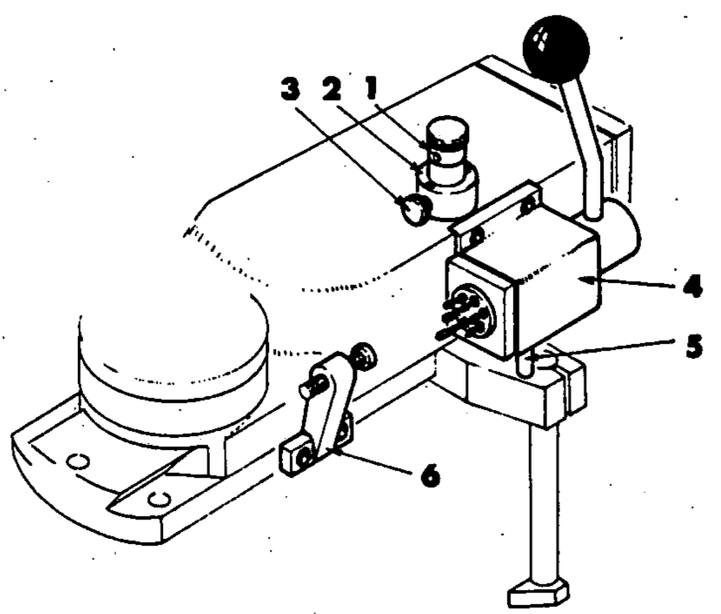




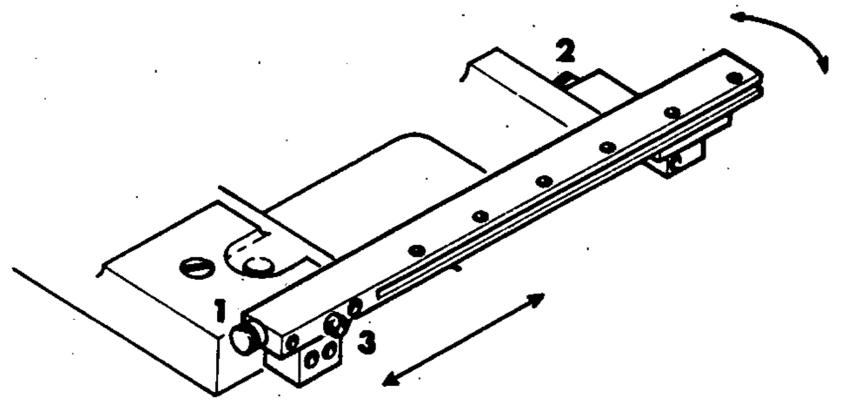
SLIDE POSITION CHART



HYDRAULIC PROFILING UNIT



TURRET STOP ASSY.



FACING BEAM ASSY.

Rear beam assembly

The dovetail-section beam is fitted directly on the rear face of the lathe bed to provide a rigid datum surface for carrying the model (or master) parallel to the centre-line of the machine.

Two beam-brackets slide on the beam to provide the locating surface for two tailstock-type model carriers which can accommodate either round master profiles or flat templates. Both brackets are mounted and locked on the beam by means of knurled handwheels. The tailstock centre of the model carrier at the headstock end is spring-loaded, that at the tail-end is adjustable by a knurled handwheel to give up to $2\frac{1}{2}$ in. (64 mm) of travel. Both model carriers are adjustable laterally relative to the machine centre-line and are locked by means of locking handles. Each tailstock housing is suitably drilled and tapped for attachment of flat profiling templates; short templates may be bolted on the tail-end housing only, longer templates should be supported at both housings. When the template is produced for support at both housings, the clamp-bolt holes should be made slightly elongated to permit small transverse adjustments.

Hydraulic power unit

This is a free-standing, combined tank and pump unit; designed to fit neatly at the back of the lathe. The motor unit is flange-mounted vertically upon the cover of the hydraulic tank. The electric pump works on $\frac{1}{2}$ h.p. producing a working pressure of 300 lb/sq. in. A pressure gauge is fitted on all units. The pump and oil filters can be removed easily for inspection or servicing. Connection of the pump unit to the profile slide assembly is by means of three plastic hoses (two of large bore, one of small bore) all of which are sheathed in a single flexible conduit.

ITEMS AVAILABLE AS EXTRA EQUIPMENT

Facing beam

To enable the profile slide unit to be used at 30° and parallel to the centre line of the machine, a facing beam is required. This consists of a slotted beam, or template carrier, which is mounted across the end of the saddle in the position shown in the sketch opposite. The template is fixed within the longitudinal slot and secured by the setscrews fitted along the edge of the beam. Final adjustment of the template position is made by setting the whole assembly over by means of the two micrometer adjusting screws (1 and 2). Screw No. 1 provides adjustment in a transverse plane whilst No. 2 varies the angle of the beam relative to the centre line of the machine. A pair of thumb-screws (3) are provided for locking the facing beam in the required position.

Turret stop assembly

The turret stop provides a highly effective means of turning a workpiece having widely varying diameters. The stop screws may be set to give up to five roughing cuts whilst the sixth station is set to allow the stylus to traverse the full template form.

Operation of the profile slide is by means of the control lever fitted to the rear face of the turret stop unit and movement of the lever to the left (towards the profile slide) brings the next turret stop screw round to the contact position and advances the unit. Movement of the lever to the right, or away from the profile slide, retracts the slide unit. To convert the standard profile assembly to a turret stop unit, the pin retaining the feed control dial (1) is removed and the ON/OFF (retraction) lever assembly is then

removed complete. A replacement keep is provided in the conversion kit; and this one must be fitted in place of the cam beneath the lever housing. Use the same two securing screws, however. The dial nut should then be re-fitted and pinned in position. The knurled lock-screw from the old lever assembly should be fitted to the new keep, as shown in the sketch. The side cover plate should next be removed and in its place the turret stop assembly is fitted, using the same four fixing screws. Now with the turret stop control lever in the retracted position, insert a spring dowel pin (5) through the underside of the hole in the stylus lever until it projects through the base of the turret stop assembly by approximately $\frac{3}{8}$ in. (10 mm.). The adjustable stop bracket (6) can now be fitted to the holes which are pre-drilled and tapped in the baseplate, using the screws provided in the conversion kit.

ASSEMBLING HYDRAULIC PROFILING ATTACHMENT TO LATHE

By consulting the chart shown in the sketches, the most suitable position for the profile slide assembly to produce the required work may be readily ascertained.

1. Clean out the pre-tapped holes at the rear of the cross slide and on the machined face at the rear of the bed. Mount the profile slide unit on the rear of the lathe cross slide and secure it in position with the four $\frac{5}{16}$ in. UNC screws provided (three screws fitted from the top, one from underneath).
2. Mount the rear beam unit on the machined face at the back of the lathe bed and secure in position using the socket cap screws provided. Before finally tightening the screws ensure that the beam is positioned parallel to the bedways; this can be accomplished by mounting a dial indicator on the rear of the saddle and with the gauge anvil running along the top edge of the beam.
3. The free-standing pump and tank unit should be positioned at the back of the lathe, toward the tail-end. After inserting the hydraulic hoses into the flexible sheathing, connect up between the units. Take care to match the marks on the tank connections with similar markings on the profile slide unit. This applies only to the two hoses of equal diameter, the third (smaller) hose can be fitted only in one position. Clamp the flexible sheathing at both the pump unit and profile slide ends.
4. Fill the hydraulic tank with Shell Tellus 33 oil to the level shown on the oil-sight glass. Before use, the hydraulic system must be bled of all air and provision is made on the top and rear face of the profile slide unit for this. With the motor connected up (see below) switch on the pump, check that the control lever is at the OFF or retracted position, then partially unscrew the rear bleed plug. When all air and bubbly oil has been expelled through the bleed plug, screw it up tight. Set the control lever now in the ON or contact position and repeat the procedure to expel all air through the top bleeder plug.

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652-4

Introduction

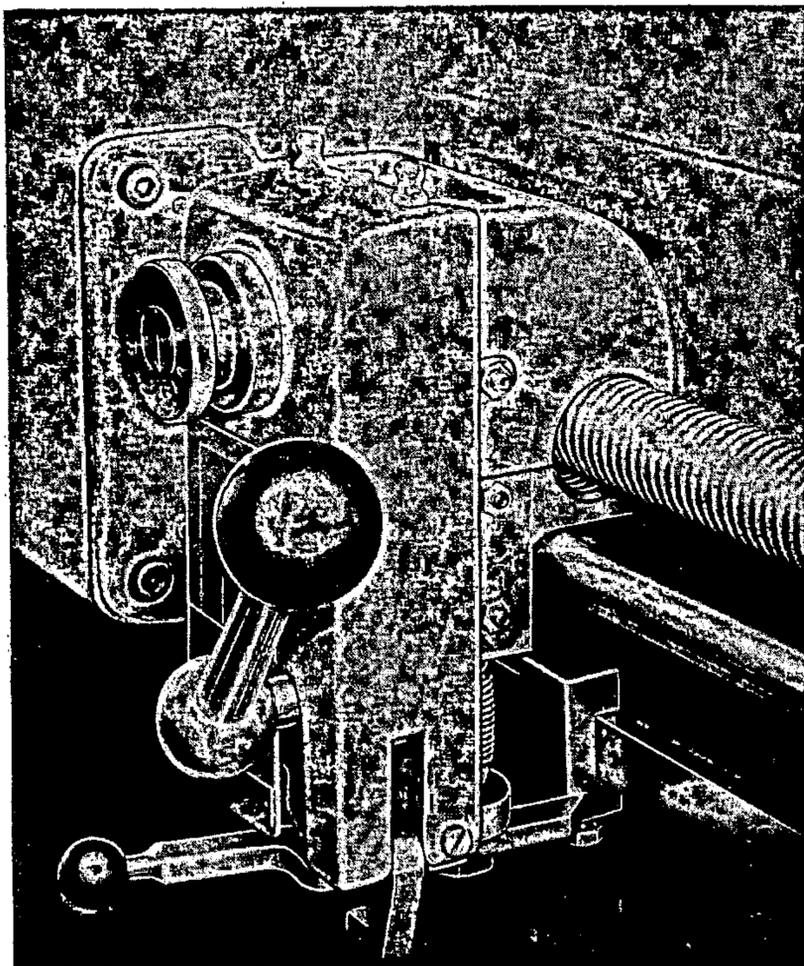
This attachment is designed to replace the existing screwcutting mechanism of the lathe. It is secured to the right hand side of the lathe apron by socket head screws and accurately positioned by dowels.

The attachment contains its own half-nut mechanism and obviates any possibility of the thread being picked up incorrectly. A threading dial is eliminated; the operator merely presses on the handle and the half-nut will engage at the correct point to pick up all American and English threads, including fractional threads per inch.

Once fully engaged, the half-nut is locked positively in mesh with the lead screw and always at precisely the same depth of engagement until disengaged automatically or manually.

When the knock-off lever encounters the stop which is fitted to the lathe bed, the half-nut is disengaged automatically, safely and with great accuracy.

As engagement of the half-nut is controlled and release is automatic, threads can safely be cut at high spindle speeds, the only limiting factors being considerations of tool life and the speed at which the carriage can be picked up without undue strain on the lathe mechanism.



Setting and Operation

The setting dial can be pulled out and turned to four different positions, the settings being as follows:
0—"Safe". Impossible to engage half-nut with lead screw

1—Odd-quarter threads per inch (e.g. $4\frac{3}{4}$)

2—Odd-half threads per inch (e.g. $4\frac{1}{2}$)

4—Whole numbers of threads per inch (e.g. 8 or 13)

Move the knock-off control to the "Screwcut" position and set the adjustable stop to engage the knock-off lever so the half-nut is disengaged at approximately the required position. Now, with the tool clear of the work and the lathe running, engage the half-nut and allow the knock-off to operate. Fine adjustment may then be made by using the compound slide.

Threads may be cut either by feeding the tool straight in or by using the top slide at half the thread angle. When using the latter method, however, allowance must be made for the fact that the tool will have moved forward by half the pitch when the thread is completed.

The tool may be allowed to form its own annular groove at the end of the cut, but should be withdrawn without delay to avoid rubbing.

It is important that the lead screw be clean and free from swarf for high speed screw cutting.

INSTRUCTIONS FOR FITTING NEW HALF NUT

Access to the screws securing the half nut is through two holes in the main casting of the attachment.

IT IS IMPORTANT to check that synchronisation of the nut and pinion is correct and, if necessary, adjustment must be made as detailed in the Maintenance section.

Mounting Instructions

1. Remove covers from the High Speed Threading unit.
2. Remove threading dial from carriage apron.
3. Loosen steady adjusting nut (B) and slide steady (C) up slightly.
4. Fit threader over lead screw, near the tailstock end of the lathe and hold in place. Engage threader half nut (E).
5. Move carriage back until it contacts face of threader. Attach threader to apron with three mounting bolts (A). Tighten bolts just enough to hold while aligning threader.
6. Ensure half nut is fully engaged with lead screw by applying gentle pressure upwards (taking care not to deflect leadscrew). Tighten bolts (A).
7. Position Steady (C) so that it just clears lead screw (.003 in. maximum); tighten steady adjusting nut (B).
8. On 17 in. lathes only, adjust lower steady (located next to apron) to bear lightly on underside of leadscrew.
9. Position stop bar (H) below knock-off lever (F) (about $\frac{1}{8}$ in. clearance) and parallel to feed rod. Locate mounting holes on lathe beddrill and tap $\frac{1}{8}$ in. UNC for mounting screws.
10. Attach stop bar to bed using flat head machine screws and spacers provided.
11. **Note:** When knock-off lever (F) is in "screwcut" position (i.e. knob moved to left) the knock-off lever should engage the stop (K) by approximately $\frac{5}{16}$ in. and when in the "lock" position (i.e. moved to right) it must be clear of the stop. Make any adjustment necessary by altering length of knock off lever or stop bar spacers.
12. Check the correct fitting of the threading unit as follows:—

Set the stop to engage the knock-off lever with the tool clear of the work. With the lathe running at about 300 r.p.m. and set to cut say 12 T.P.I., engage the nut, as described under "engaging the half-nut" and allow the knock-off to operate. It will be seen that the initial action of the knock-off mechanism is to rotate the locking lever clockwise and release the selector pin.

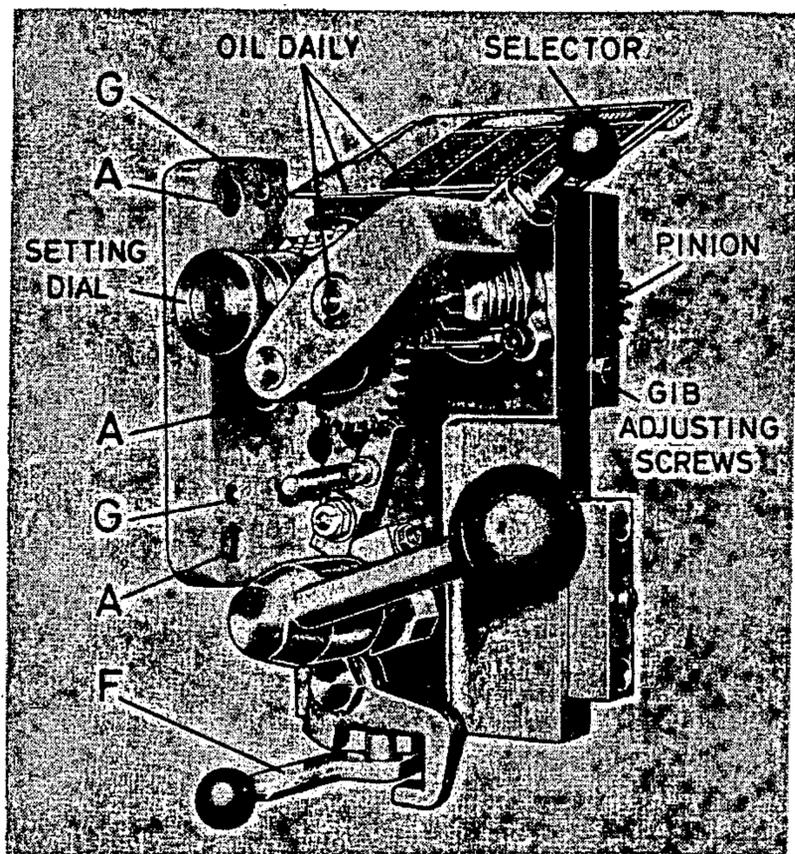
Immediately the selector pin is released it should fly out of the dial slot and the nut should disengage from the leadscrew.

If this action is sluggish it must be corrected by altering the position of the attachment on the apron in such a way to ensure that the nut is fully engaged and bearing against the front of the lead-screw (i.e. move the attachment away from the operator).

It is important to note that the half-nut has been designed so that it is thrown clear of the leadscrew immediately the slide pin is released. If the attachment is fitted incorrectly and the nut is pressing against the back of the leadscrew (i.e. tending to bend the leadscrew towards the operator) the servo action will not operate and the release mechanism is liable to act sluggishly.

This fault can be easily discovered by observing the slide pin when the knock-off mechanism operates with an increased load applied to the carriage by applying slight hand pressure to the traversing hand wheel. If the slide pin flies out of the dial slot **immediately** it is released the action is satisfactory, but if there is a slight pause the servo action is not operating and the nut is being forced out of engagement with the leadscrew by the safety device incorporated in the attachment.

13. After any necessary adjustments have been made, and repeated trials show that the attachment is working satisfactorily, drill dowel holes in lathe apron through holes "G" in threader, ream to dowel size and fit dowels.
14. Replace the covers and the attachment is ready for operation.



Engaging the Half-Nut

With the lathe running at required speed, hold down the handle with a steady pressure. Engagement will not be possible until the right moment, which is indicated by a movement of the handle. At this moment the handle should be depressed fully and released. If the half-nut is not properly locked in engagement, the handle will fly back and the procedure should be repeated.

The handle must be held down firmly and steadily until the half-nut engages; it should not be depressed intermittently or engagement will be delayed.

The handle *must* be released on engagement.

Before screw cutting, it is recommended that the operator carry out a few runs with the tool clear of the work to get the "feel" of the mechanism.

Manual Release

If it is required to cut a thread without using the automatic knock-off, the half-nut can be disengaged manually.

Safety Lock

If it is required to advance the carriage beyond the stop, this may be done without interfering with the setting, by moving the knock-off control to the "lock" position. It will then be retained in a position which will allow the stop to be by-passed, at the same time locking the attachment so that it will not be possible to engage the half-nut until the knock-off control is returned to the "screw cut" position.

Left Hand Threads

Left hand threads should be cut by reversing the lathe and inverting the tool. The lead screw can then be set to run in the normal direction of rotation and the automatic knock-off can be used. If a screw-on chuck is used, care must be taken, of course, to ensure that it does not unscrew while running.

Lubrication

Medium lubricating oil, not grease, should be used at the points indicated.

The double ball bearing on the pinion shaft is packed with grease and will not require attention.

Maintenance

Adjustment for wear in the half-nut slide is by three socket head screws with lock nuts operating on a gib on the right hand side of the attachment. It is essential, however, that this slide works freely over the full range of its travel.

Initially the attachment will either be fitted by a trained service engineer, or will be supplied with the mounting bracket drilled to correspond with existing locations on the lathe apron, but the following points should be noted:

1. When the half-nut mechanism is locked in engagement, the half-nut should be deeply meshed and the steady set to prevent the lead screw distorting upwards.
2. The half-nut should not bow the lead screw horizontally, a slight deflection away from the attachment is acceptable, but there must be no deflection towards the attachment.
3. With the cover of the attachment removed, it will be seen that a pin enters one of the slots in the control disc when the half-nut is engaged. With back lash taken up, this pin should be approximately central in the slot, with a slight bias towards the side of the slot nearest the mounting flange of the attachment. On no account must it bear against the side of the slot.

Should this fault develop through wear, it may be corrected by re-synchronizing the pinion as follows. Withdraw the pinion from the shaft after removing the retaining screw. The pinion is located on the driving collar by a pin which will engage any one of a series of holes arranged to give a vernier action. By moving the pinion round one hole at a time, the best position can easily be found by trial and error. A second pin, fitted to the reverse side of the pinion, may be used to give a further set of positions if necessary.

No other adjustment should be attempted without consulting the suppliers and the serial number of the attachment must always be quoted in case of difficulty or when ordering replacements.

CLAUSING—Colchester

PARTS SECTION

IMPORTANT:

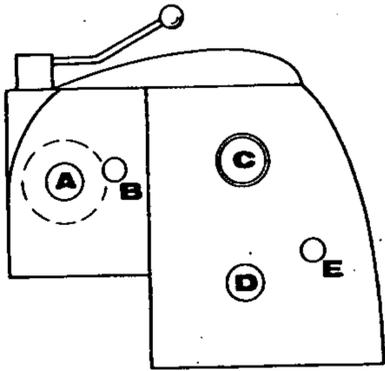
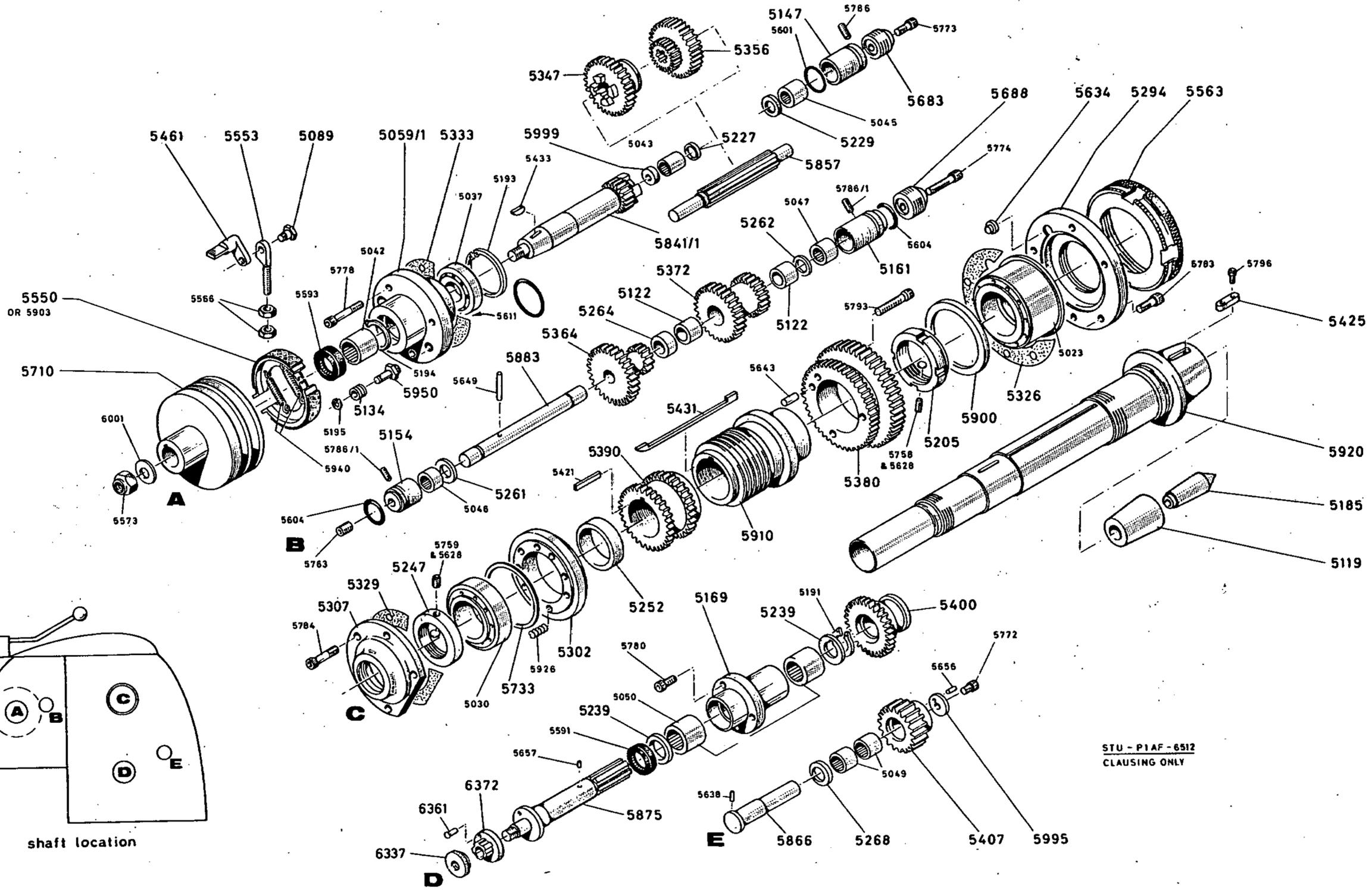
WHEN ORDERING

1. Quote component Order Number, which is given on the illustration, for all component parts required.
2. Give component description in full, from schedule opposite each drawing.

Note:- Those component Order Numbers printed on the drawing in small type are for standard items which can generally be purchased locally; e.g. nuts, bolts, screws and washers etc.

3. Always quote Lathe Serial Number in all orders or technical enquiries. This number is stamped on the bed at the tailstock end.

6521-3
6521-4



STU - P1AF - 6512
CLAUSING ONLY

HEADSTOCK : gears & shafts (A-F)

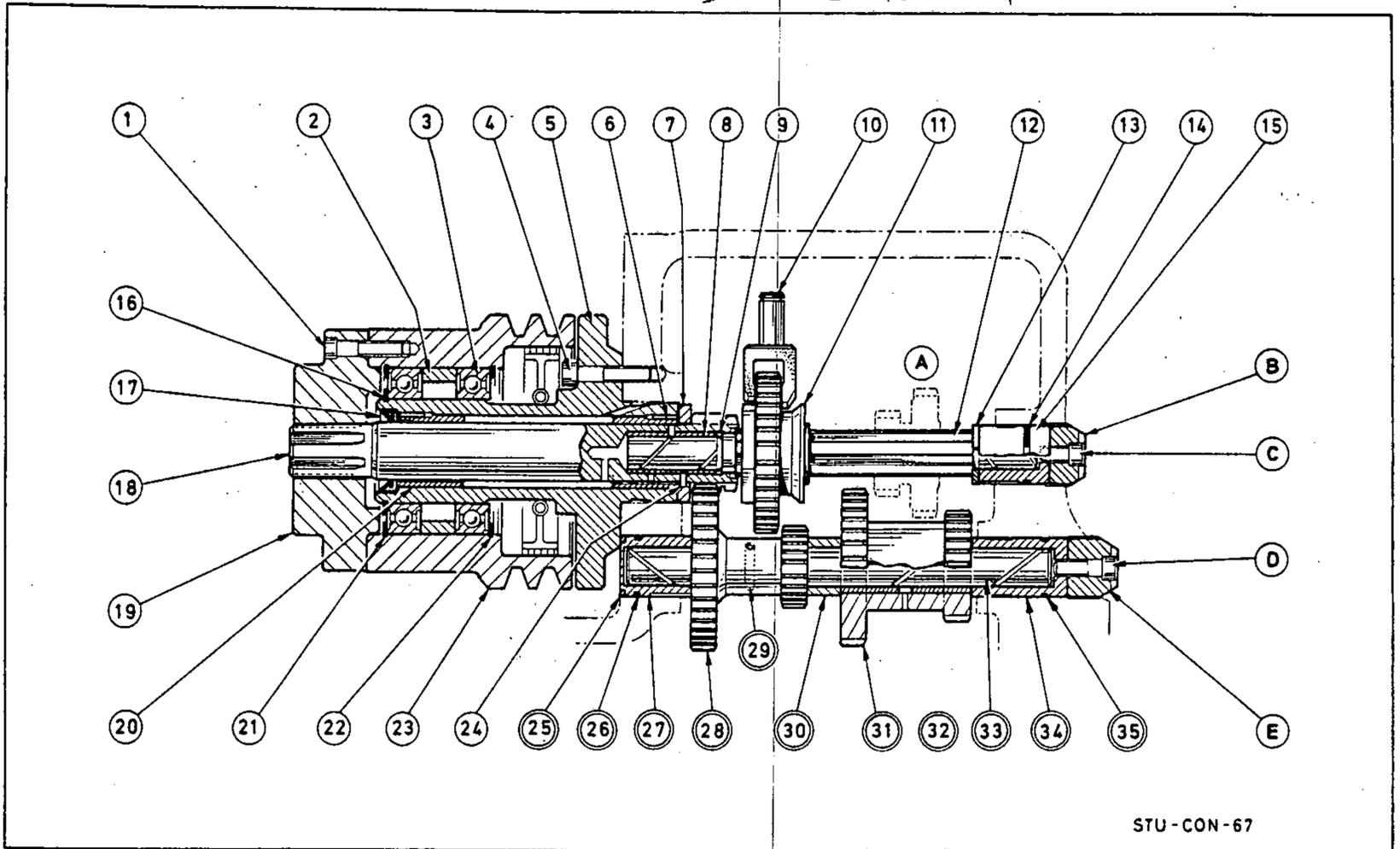


Serial No. 48868 to 63742

*Office
Master Book only*

HEADSTOCK CONVERSION CLAUSING - COLCHESTER 13" LATHES

Converts existing anti-friction headstock, with pulley mounted direct on clutch drive shaft, to new set-up having pulley mounted on own bearings



CONVERSION PROCEDURE

1. Slacken off and remove drive belts. Remove headstock cover.
2. Disassemble flanged bearing complete with clutch drive shaft from headstock. Retain cap-head securing screws for re-use.
3. Retain brake unit complete for re-use with new assembly.
4. Take out driving shaft with needle bearings complete in carrier. Retain the 14/24T sliding gear for re-use, but discard existing 30T gear.
5. Assemble new driving shaft, bush complete with new O-ring and shaft washer into headstock (items 12, 13, 14 and 15). Use existing screwed plug and screw (items B and C). Transfer sliding gear A to new shaft and add new 30T gear on shaft, see diagram.
6. Assemble clutch drive shaft into bushed flange bearing; take note from drawing how

NOTE:

1. All parts to be clean and oiled before fitting up.
2. Main bearings (item 3) are sealed, need no lubrication. When fitting replacement bearings on flanged bearing, assemble with Loctite grade CV.
3. Secure bushes (items 15, 27, 34) with existing screws through casting bosses.

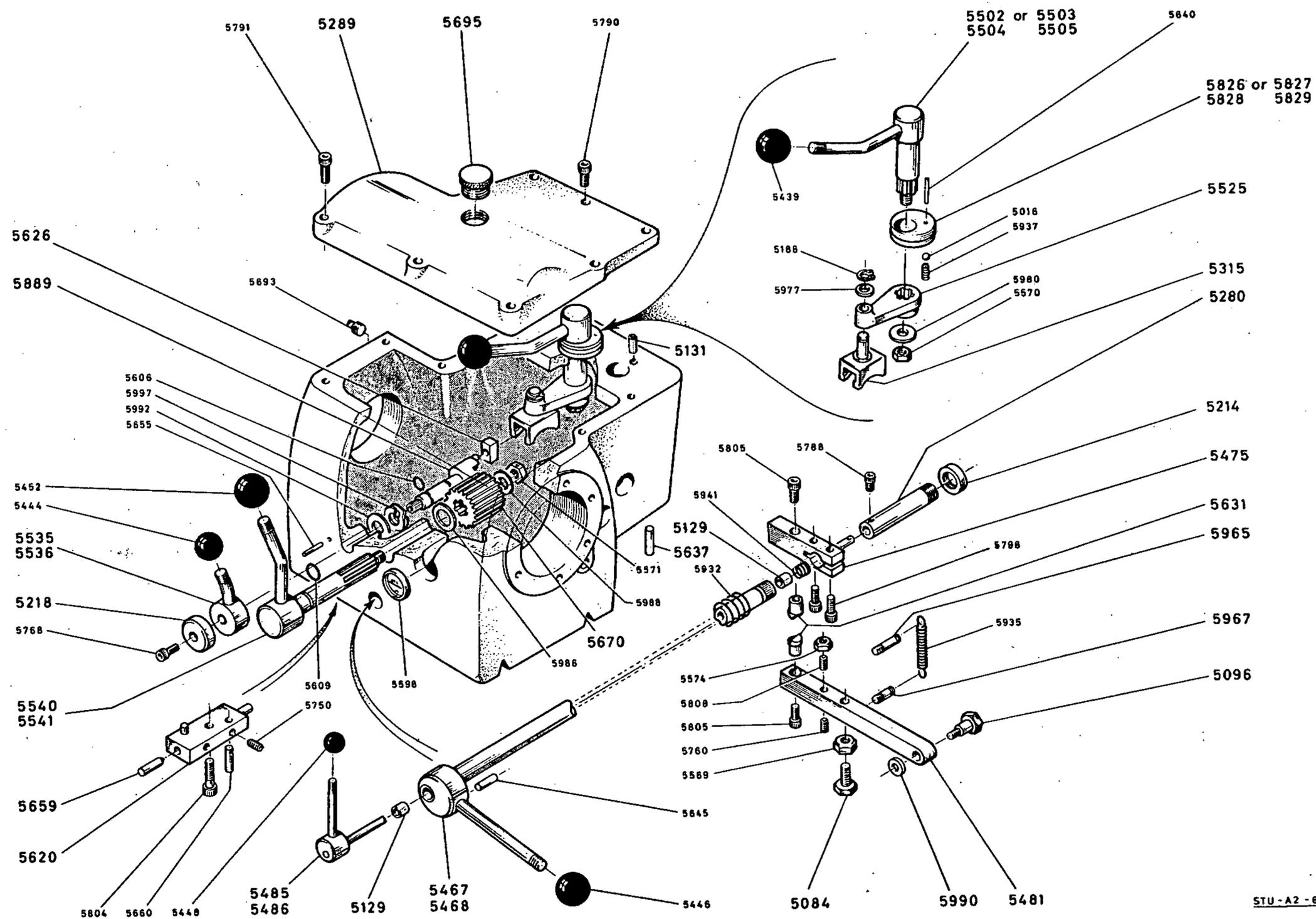
7. Assemble new flanged bearing assembly to headstock, using existing screws (item 4).
8. Transfer machine brake parts to new flanged bearing.
9. Assemble pulley and bearings sub-assembly on flanged bearing, secure with snap-ring (item 16).
10. Fit driving plate (item 19) over serrated-end of clutch drive shaft and secure with screws (item 1). Smear thread of screws with Loctite grade AVV before tightening.
11. Replace gear shifter fork for 30T gear with new part (item 10).
12. Connect up brake linkage, refit drive belts and tension up. Check out lathe on test run.

4. When specially ordered, additional components are supplied to replace second-shaft and bearings. Assemble as shown in diagram, parts are numbered 25 through 35 in double circles.
5. Existing parts of second shaft required for re-use are end plug and screw (items D and E). Discard all other parts.
6. Bore of these bearings should be lightly coated with Loctite Bearing Fit furnished before assembling on flanged bearing.

Ref. Drg. STU-P1 AF-6512

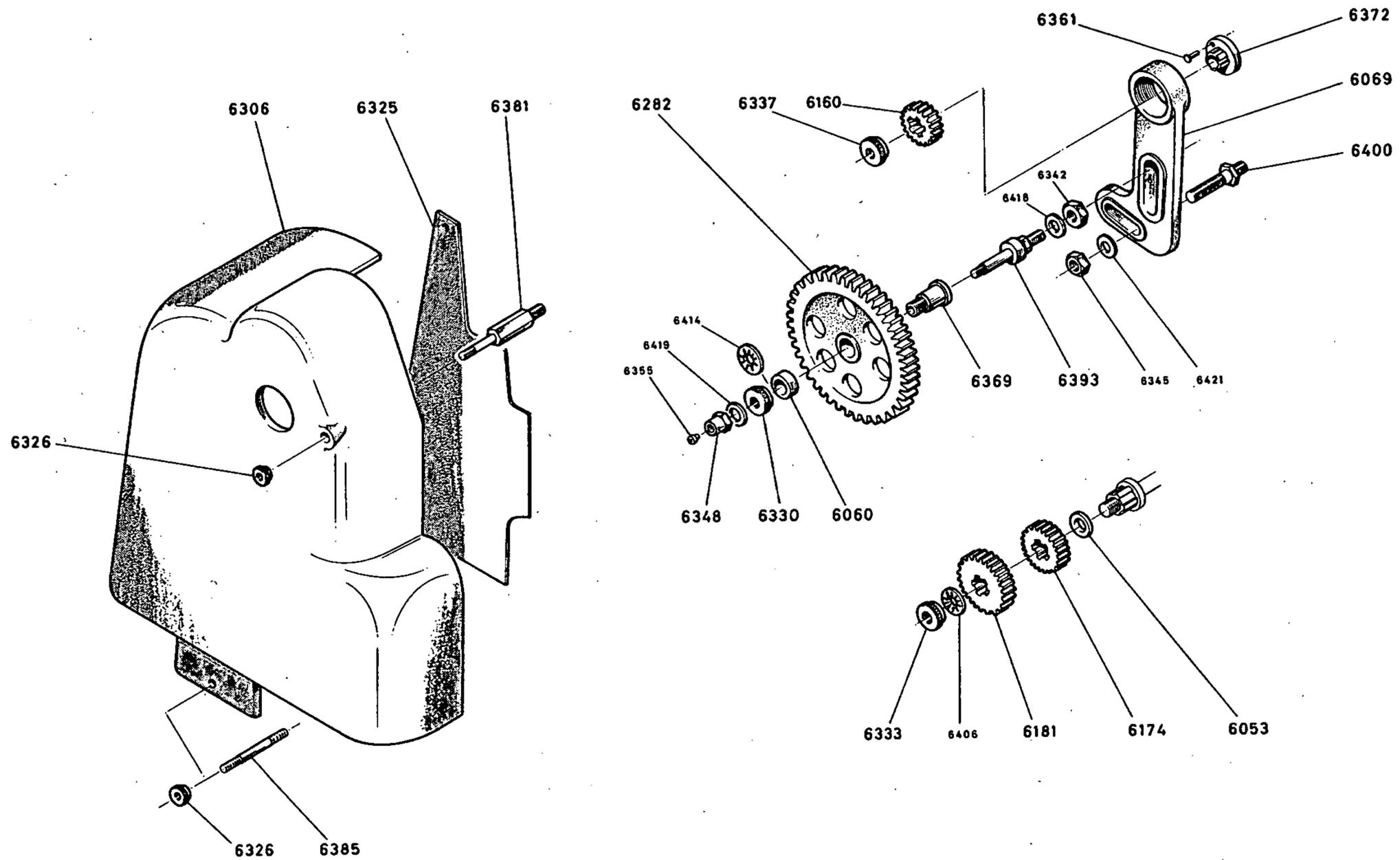
HEADSTOCK: Gears & Shafts (AF)

<u>Order No.</u>	<u>Description</u>	<u>Order No.</u>	<u>Description</u>	<u>Order No.</u>	<u>Description</u>		
5059/1	Flanged Bearing	5461	Brake-shoe expanding Lever	5193	Journal Bearing Clip	12-774	
5089	Expanding-lever Bolt	5553	Expanding-lever Link	5194	Needle Bearing Clip	13-795	
5119	Centre Bush	5563	Spindle-nose Draw Nut	5195	Brake-shoe Bush Clip	11-845	
5122	Second Shaft Gear Bushes (2)	5628	Spindle Collar Pads (2)	5421	Spindle reverse-gear Key	17-009	
5134	Brake-shoe Flanged Bush	5634	Front-bearing Peg	5433	Clutch Driving Shaft Key	17-002	
5147	Driving-shaft Bush	5683	Driving-shaft Bush Screwed Plug	5566	Brake Adjusting Locknut	20-637	
5154	Second Shaft Bush (L.H.)	5688	Second-shaft Bush Screwed Plug	5573	Pulley Retaining Nut	21-683	
5161	Second Shaft Bush (R.H.)	5710	Driving Pulley	5591	Reverse-shaft Oil Seal	79-865	
5169	Reverse Shaft Flanged Bush	5733	Back-bearing Thrust Ring	5593	Clutch Flanged-bearing Oil Seal	79-181	
5185	Centre, No. 3 Morse	5841/1	Clutch Driving Shaft	5601	Driving-shaft Bush Oil Ring	27-182	
5205	Front-bearing Adjusting Collar	5857	Driving Shaft	5604	Second-shaft Bush O-rings (2)	27-182	
5227	Driving Shaft Thrust Collar	5866	Inter-reverse Shaft	5611	Flanged Bearing O-ring	27-148	
5229	Driving Shaft Spacer Collar	5875	Reverse Shaft	5638	Inter-rev. Shaft Locating Pin	24-539	
5239	Reverse Shaft Spacer Collar	5883	Second Shaft	5643	Double-gear Locating Pin	24-590	
5247	Screwed Collar on Spindle	5900	Front Bearing Shield	5649	Second-shaft Gear Securing Pin	14-607	
5252	Back-bearing Spacer Collar	5910	Sliding Sleeve	5656	Gear Stop-washer Pin	24-520	
5261	Second Shaft Spacer Collar (L.H.)	5920	Main Spindle	5657	Collar Locating Pin	25-584	
5262	Second Shaft Spacer Collar (R.H.)	5950	Brake-shoe Fixing Stud	5758	Collar Locking Screw	60-361	
5264	Second Shaft Gear Spacer	5995	Inter-reverse Gear Stop Washer	5759	Screwed-collar Locking Screw	60-361	
5268	Inter-reverse Shaft Spacer Collar	5999	Shaft-bearing Removal Washer	5763	Second-shaft Plug Screw	67-419	
5294	Front-bearing Outside Cover	6337	Reverse-shaft Knurled Nut	5772	Stop-washer Retaining Screw	46-212	
5302	Back-bearing Inside Cover	6361	Shear Pin	5773	Screwed-plug Retaining Screw	47-225	
5307	Back-bearing Outside Cover	6372	Shear-pin Sleeve	5774	Screwed-plug Retaining Screw	47-228	
5326	Front-bearing Cover Gasket			5778	Flanged-bearing screws (3)	47-228	
5329	Back-bearing Outside Cover Gasket			5780	Flanged-bearing screws (3)	46-212	
5333	Flanged Bearing Housing Gasket	STANDARD ITEMS		5783	Front bearing-cover Screws (3)	46-213	
5347	Driving Shaft Gear, 30T	5023	Front Roller Bearing (Gamet)	5784	Back-bearing Outside Cover Screws (3)	46-213	
5356	Driving Shaft Gear, 14/24T	5030	Back Roller Bearing (Gamet)	5786	Bush Securing Screw	67-419	
5364	Second Shaft Gear, 13/30T	5037	Flanged-bearing Journal	02-180	5786/1	Bush Securing Screws (2)	67-419
5372	Second Shaft Gear, 20/28T	5042	Flanged-bearing Needle Bearing	03-925	5793	Double-gear Securing Screws (3)	47-229
5380	Double Gear On Spindle, 51/44T	5043	Driving-shaft Needle Bearing	03-886	5796	Nose-key Securing Screws (2)	45-201
5390	Reverse Gear On Spindle, 30/30T	5045	Driving-shaft Bush Bearing	03-886	5903	Brake-shoes, c/w Linings	09-997
5400	Reverse Shaft Gear, 30T	5046	Second-shaft Bush Bearing, L.H.	03-888	5926	Back-bearing pressure springs (15)	82-812
5407	Inter-reverse Shaft Gear, 20T	5047	Second-shaft Bush Bearing, R.H.	03-888	5940	Brake-shoe Springs (2)	85-696
5425	Spindle-nose Key	5049	Inter-reverse Gear Bearing	03-184	6001	Pulley Retaining Washer	82-815
5431	Sliding-sleeve Key	5050	Reverse-shaft Bush Bearing	03-183			
		5191	Reverse-shaft Circlip	11-749			



STU-A2-6512

HEADSTOCK: castings & levers



6
6521-2
6521-4

STU - P4 - 6512

SWING FRAME : standard

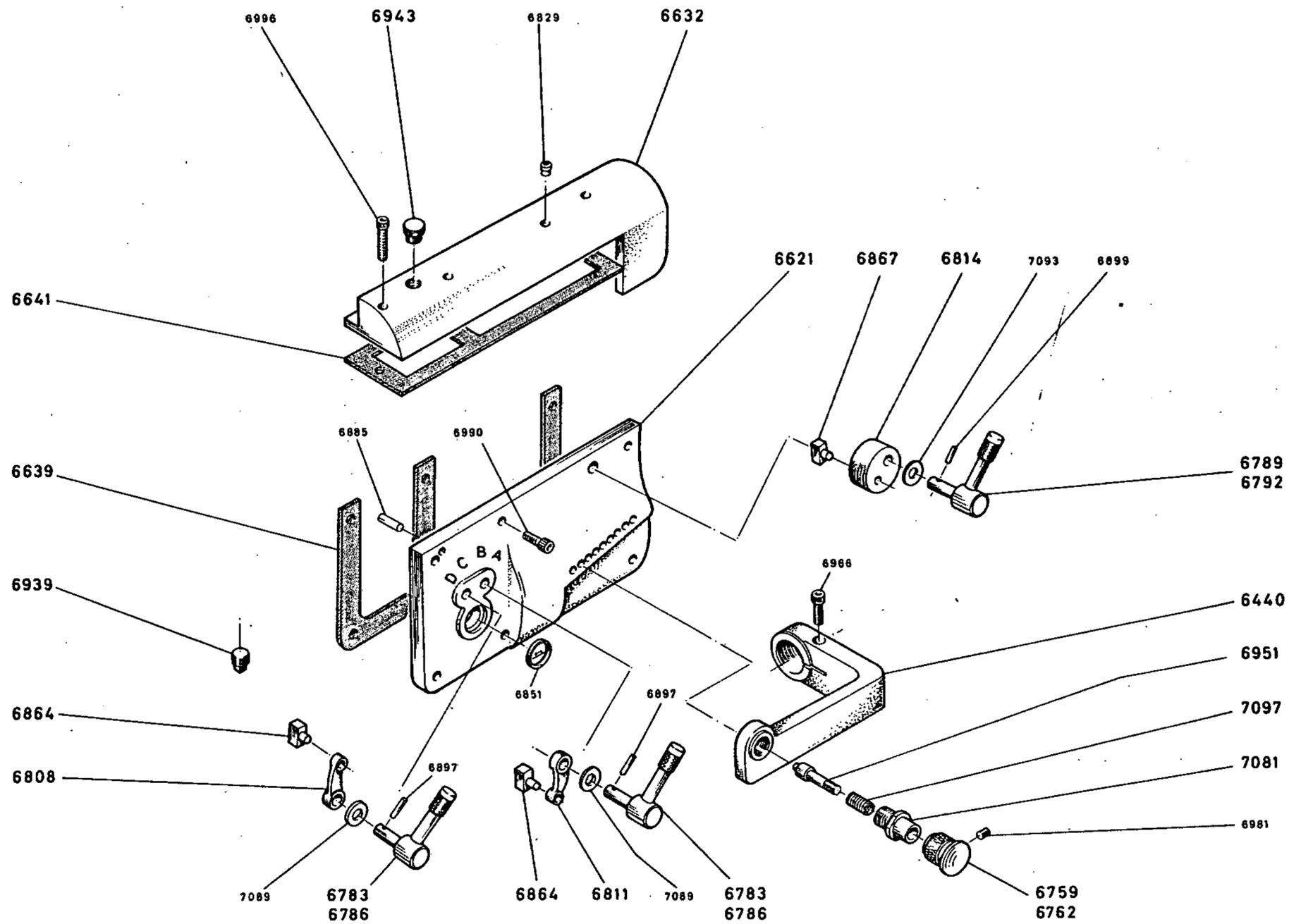
Ref. Drg. STU-P4-6512

SWING FRAME: Standard Lathes

<u>Order No.</u>	<u>Description</u>	<u>Order No.</u>	<u>Description</u>
6053	Change Gear Alignment Collars (Set of 4)	6372	Shearpin Sleeve
6060	Change Gear Sleeve Spacer Collar	6381	Guard Stud (Hex.)
6069	Swing Frame	6385	Guard Stud (Round)
6160	Change Gear, 21T/16P	6393	Change Gear Stud
6174	Change Gear, 35T/16P	6400	Swing Frame Fixing Stud
6181	Change Gear, 42T/16P		
6282	Change Gear, 120T/16P		
6306	Belt and Change Gear Guard		
6325	Inner Belt Guard	6342	Change Gear Sleeve Stud Locknut 20-624
6326	Change Gear Guard Knurled Nut	6345	Swing Frame Locking Nuts (2) 20-624
6330	Change Gear Sleeve Knurled Nut	6355	Change Gear Stud Oiler 23-124
6333	Gearbox Driving Shaft Knurled Nut	6406	Gearbox Driving Shaft Fan Disc Washer 86-029
6337	Reverse Shaft Knurled Nut	6414	Change Gear Sleeve Fan Disc Washer 86-030
6348	Oiler Retaining Nut, c/w Oiler	6418	Change Gear Stud Washer 85-695
6361	Shearpin	6419	Oiler Retaining Nut Washer 85-692
6369	Change Gear Sleeve	6421	Swing Frame Fixing Stud Washers (2) 85-695

STANDARD ITEMS

SPECIFICATIONS OF STANDARD ITEMS ARE GIVEN IN APPENDIX 1



STU - P10 - 8512

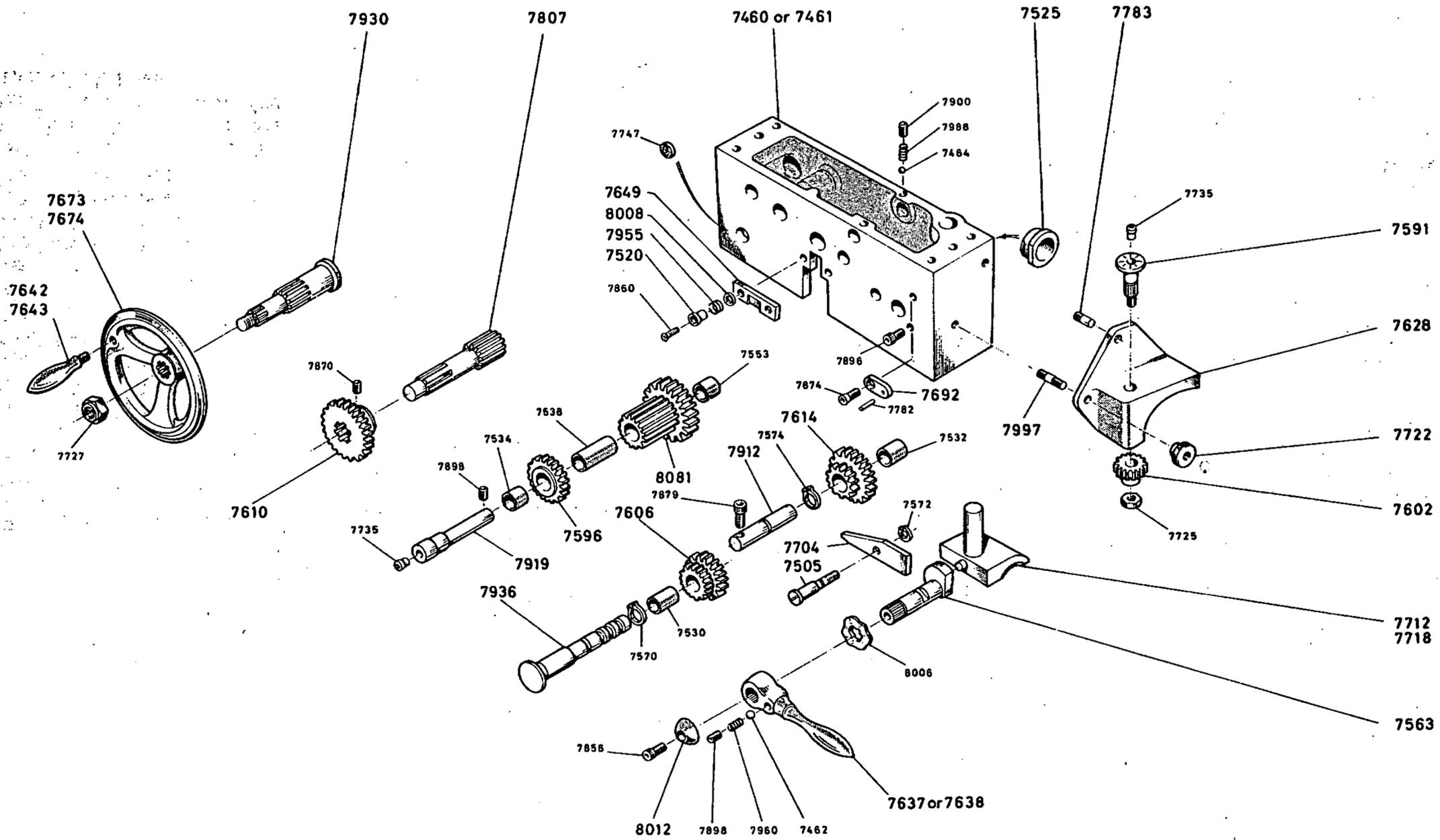
GEARBOX (Standard) : covers & levers

Ref. Drg. STU-P14-6512

APRON: (Gap-Bed)

<u>Order No.</u>	<u>Description</u>	<u>Order No.</u>	<u>Description</u>	<u>Order No.</u>	<u>Description</u>	<u>Order No.</u>	<u>Description</u>
7451	Apron Casting	7712	Leadscrew Half-Nut (Standard)	7534	Idler Gear Bush	10-964	
7469	Wormbox Latch Bar	7718	Leadscrew Half-Nut (Metric)	7538	25T Pinion Bush	10-958	
7505	Interlock Lever Pivot Bolt	7722	Dial Indicator Knurled Nut	7553	Apron Wormwheel Bush	10-991	
7520	Wormbox Latch Bar Bush	7783	Dial Indicator Guard Locating Pin	7570	Feed Selector Gear Retaining Clip	13-784	
7525	Leadscrew Flanged Bush	7807	Rack Pinion, 12T	7572	Interlock Lever Retaining Clip	11-778	
7562	Leadscrew Nut Eccentric	7912	Surfacing Gear Shaft	7574	Surfacing Gear Retaining Clip	13-784	
7591	Indicator Dial	7919	Wormwheel & Pinion Shaft	7725	Dial Indicator Gear Retaining Nut	21-659	
7596	Idler Gear, 33T	7930	Handwheel Racking Shaft 13T	7727	Apron Handwheel Retaining Nut	21-673	
7602	Dial Indicator Gear, 24T	7936	Feed Selector Shaft	7735	Oiler Nipples (2)	23-124	
7606	Feed Selector Gear, 25/32T	7997	Dial Indicator Guard Stud	7782	Handle Stop Key Locating Pin	24-043	
7610	Sliding Gear, 42T	8008	Latch Bar Damper Washers (2)	7856	Half-Nut Handle Retaining Screw	46-212	
7614	Surfacing Gear, 22/38T	8012	Half-Nut Handle Domed Washer	7860	Latch Bar Securing Screws (2)	53-305	
7623	Dial Indicator Guard	8081	Wormwheel & Pinion, 33/25T	7870	Sliding Gear Securing Screw	60-362	
7637	Leadscrew Nut Handle			7874	Handle Stop Key Securing Screw	53-303	
7638	Leadscrew Nut Handle (Chromed)		<u>STANDARD ITEMS</u>	7879	Gear Shaft Securing Screw	45-204	
7642	Apron Handwheel Handle			7896	Half-Nut Handle Stop Screw	46-212	
7643	Apron Handwheel Handle (Chromed)	7462	Half-Nut Handle Locating Ball	7898	Half-Nut Handle Spring Tension Screw	60-362	
7673	Apron Handwheel C/W Handle	7464	Feed Selector Shaft	7900	Selector Shaft Spring Tension Screw	60-364	
7674	Apron Handwheel (Chromed)		Locating Ball	7960	Half-Nut Handle Spring	82-797	
7692	Half-Nut Handle Stop Key	7530	Feed Selector Gear Bush	7988	Feed Shaft Spring	82-078	
7704	Interlock Lever	7532	Surfacing Gear Bush	8006	Half-Nut Cam Crinkle Washer	86-735	

SPECIFICATIONS OF STANDARD ITEMS ARE GIVEN IN APPENDIX 1.



STU - P14D - 8512

APRON : Straight bed

Ref. Drg. STU-P14D-6512

APRON: Straight Bed

Order No.

Order No.

Order No.

7460 Apron Casting
 7461 Apron Casting (Clausing Only)
 7469 Wormbox Latch Bar
 7505 Interlock Lever Pivot Bolt
 7520 Latch Bar Bush
 7525 Flanged Bush
 7563 Leadscrew Nut Eccentric Cam
 7591 *Indicator Dial
 7596 Idler Gear, 33T
 7602 *Dial Indicator Gear, 24T
 7606 Feed Selector Gear, 25/32T
 7610 Sliding Gear, 42T
 7614 Surfacing Gear, 22/38T
 7628 *Dial Indicator Guard
 7637 Leadscrew Half-Nut Handle
 7638 Leadscrew Half-Nut Handle (Chromed)
 7642 Apron Handwheel Handle
 7643 Apron Handwheel Handle (Chromed)
 7673 Apron Handwheel C/W Handle
 7674 Apron Handwheel (Chromed)
 7692 Half-Nut Handle Stop Key

7704 Interlock Lever
 7712 Leadscrew Half-Nut (Standard)
 7718 Leadscrew Half-Nut (Metric)
 7722 *Dial Indicator Guard Knurled Nut
 7783 *Dial Indicator Guard Locating Pin
 7807 Rack Pinion, 12T
 7912 Surfacing Gear Shaft
 7919 Wormwheel & Pinion Shaft
 7930 Handwheel Racking Shaft, 13T
 7936 Feed Selector Shaft
 7997 *Dial Indicator Guard Stud
 8008 Latch Bar Damper Washers (2)
 8012 Half-Nut Handle Domed Washer
 8081 Wormwheel & Pinion, 33/25T

STANDARD ITEMS

7462 Half-Nut Handle Locating Ball
 7464 Feed Selector Shaft Locating Ball
 7530 Feed Selector Gear Bush
 7532 Surfacing Gear Bush
 7534 Idler Gear Bush

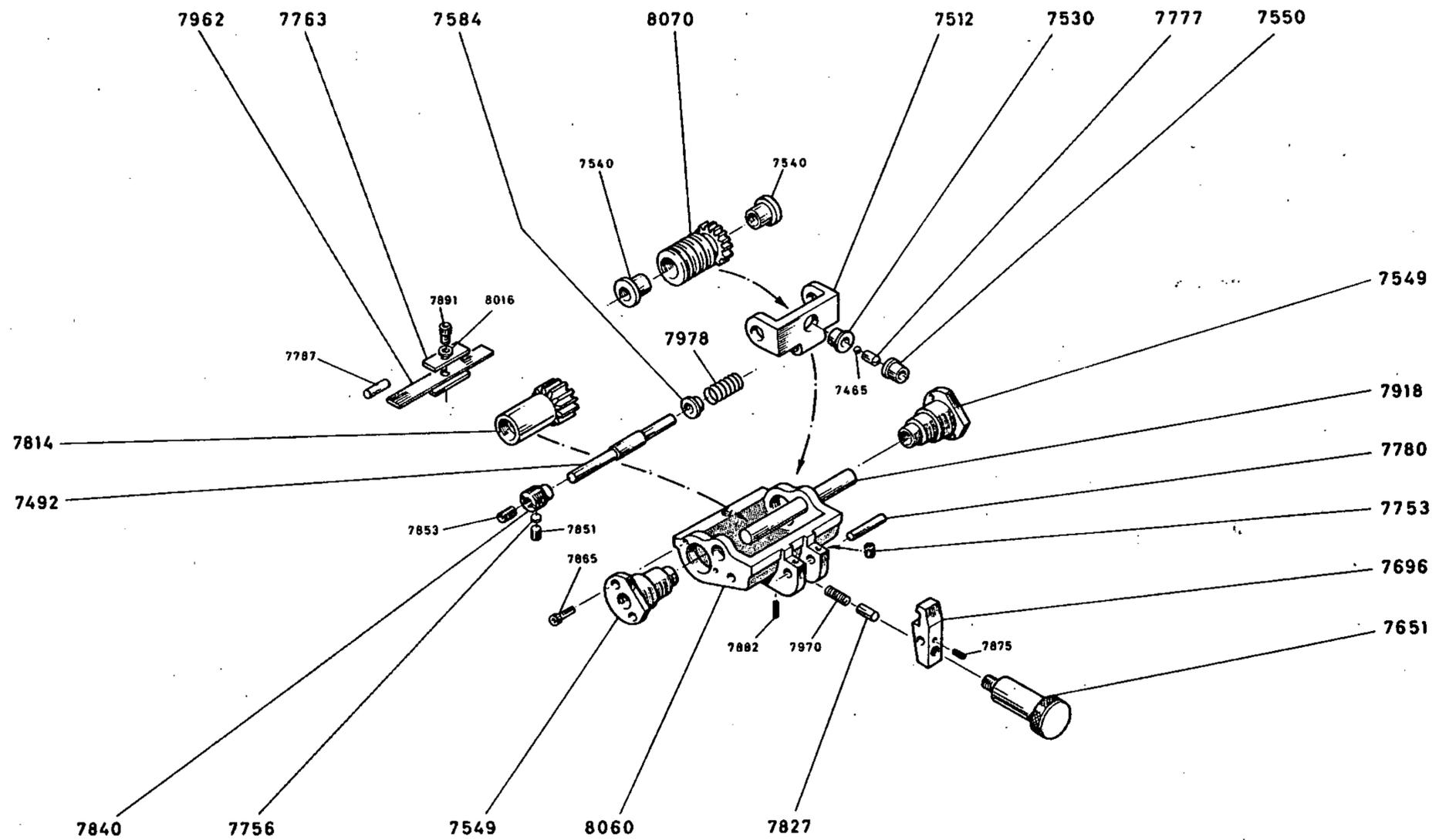
7538 25T Pinion Bush
 7553 Apron Wormwheel Bush
 7570 Feed Selector Gear Retaining Clip
 7572 Interlock Lever Retaining Clip
 7574 Surfacing Gear Retaining Clip
 7725 *Dial Indicator Gear Retaining Nut
 7727 Apron Handwheel Retaining Nut
 7735 Oiler Nipple
 7747 Oilsight (Clausing Only)
 7782 Handle Stop-Key Locating Pin
 7856 Half-Nut Handle Retaining Screw
 7860 Latch Bar Securing Screws (2)
 7870 Sliding Gear Securing Screw
 7874 Handle Stop-Key Securing Screw
 7879 Surfacing Gear Shaft Securing Screw
 7896 Half-Nut Handle Stop Screw
 7898 Handle Spring Tension Screw
 7900 Selector Shaft Spring Tension Screw
 7960 Leadscrew Half-Nut Handle Spring
 7988 Feed Selector Shaft Spring
 8006 Half-Nut Cam Crinkle Washer

10-958
 10-991
 13-784
 11-778
 13-784
 21-659
 21-673
 23-124
 80-871
 24-043
 46-212
 53-305
 60-362
 53-303
 45-204
 46-212
 60-362
 60-364
 82-797
 82-078
 86-735

* NOT on Continental lathes having metric gearbox

For wormbox details: Refer to STU-P15-6512 (Standard)
 Refer to STU-P15D-6512 (Clausing)

SPECIFICATIONS OF STANDARD ITEMS ARE GIVEN IN APPENDIX 1.



STU - P15D - 6512

APRON WORMBOX - extra

Ref. Drg.: STU-P15D-6512

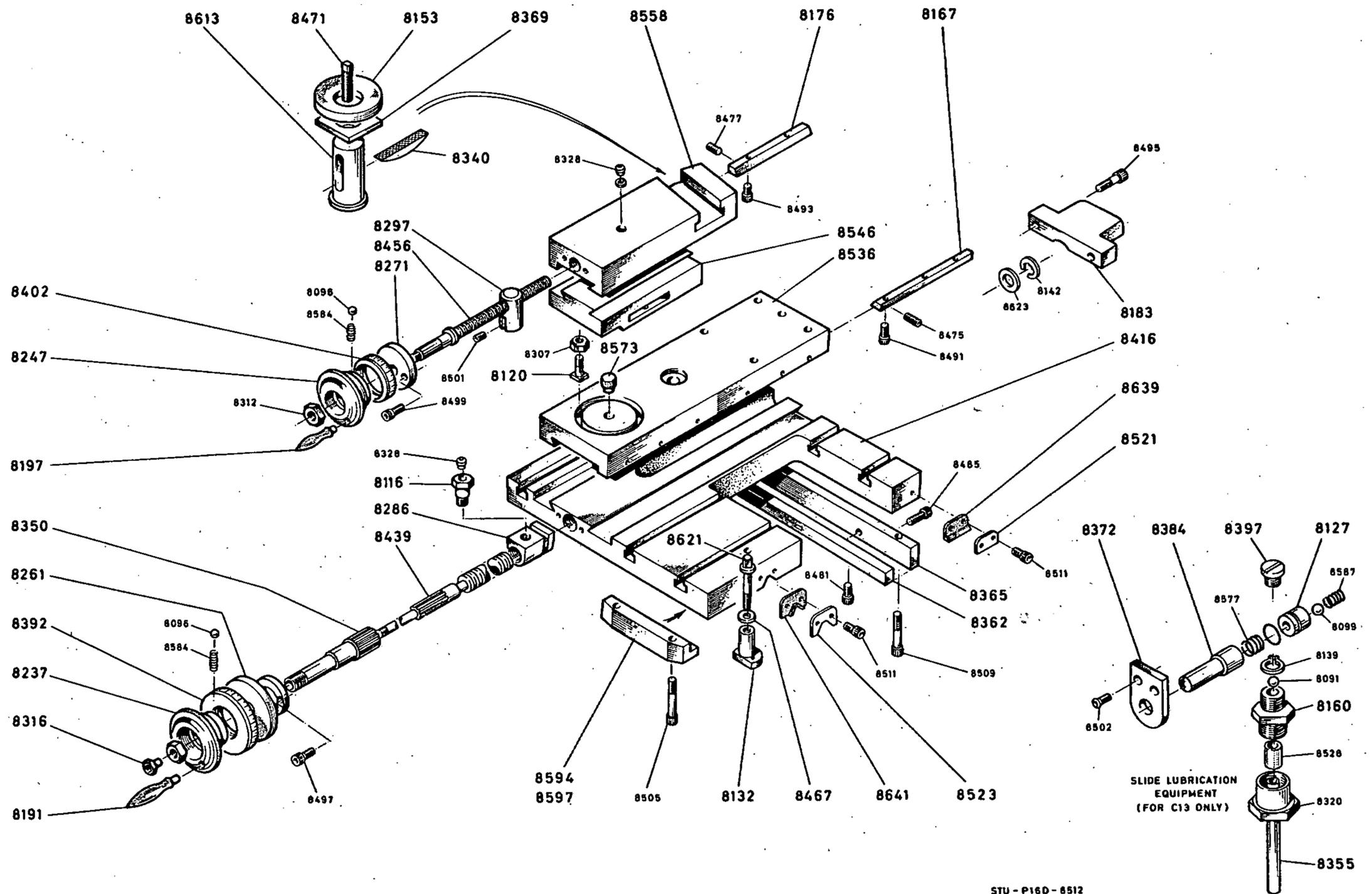
APRON WORMBOX: Extra

CLAUSING LATHES ONLY

<u>Order No.</u>	<u>Description</u>	<u>Order No.</u>	<u>Description</u>
7512	Wormbox Bracket	7962	Leaf Spring
7530	Feed Selector Gear Bush	7978	Knock-off Pressure Springs (2)
7549	Wormbox Support Bushes (2)	8060	Wormbox Casting
7550	Knock-off Pin Bush	8070	Worm & Pinion
7584	Pressure Spring Collars (2)		
7651	Wormbox Handle (Chromed)	<u>STANDARD ITEMS</u>	
7696	Wormbox Latch	7465	Wormbox Knock-off Ball 01-789
7753	Wormbox Damping Pads (2)	7540	Worm & Pinion Bushes (2) 10-909
7756	Pressure Adjusting Screw Pads (2)	7787	Wormbox Rest Pins (2) 24-543
7763	Leaf Spring Packing Piece	7851	Adjusting Screw Locking Screws (2) 58-342
7777	Knock-off Pin	7853	Spring Support Shaft Lock Screws (2) 68-428
7780	Wormbox Latch Pin	7865	Wormbox Bush Securing Screws (4) 45-203
7814	Wormbox Pinion	7875	Latch Securing Screw 59-350
7827	Latch Return Plunger	7882	Worm & Pinion Shaft Securing Screw 58-347
7840	Knock-off Pressure Adjusting Screws (2)	7891	Leaf Spring Securing Screw 45-203
7918	Worm & Pinion Shaft	7970	Handle Plunger Spring 82-824
7942	Spring Support Shaft	8016	Leaf Spring Screw Washer 86-738

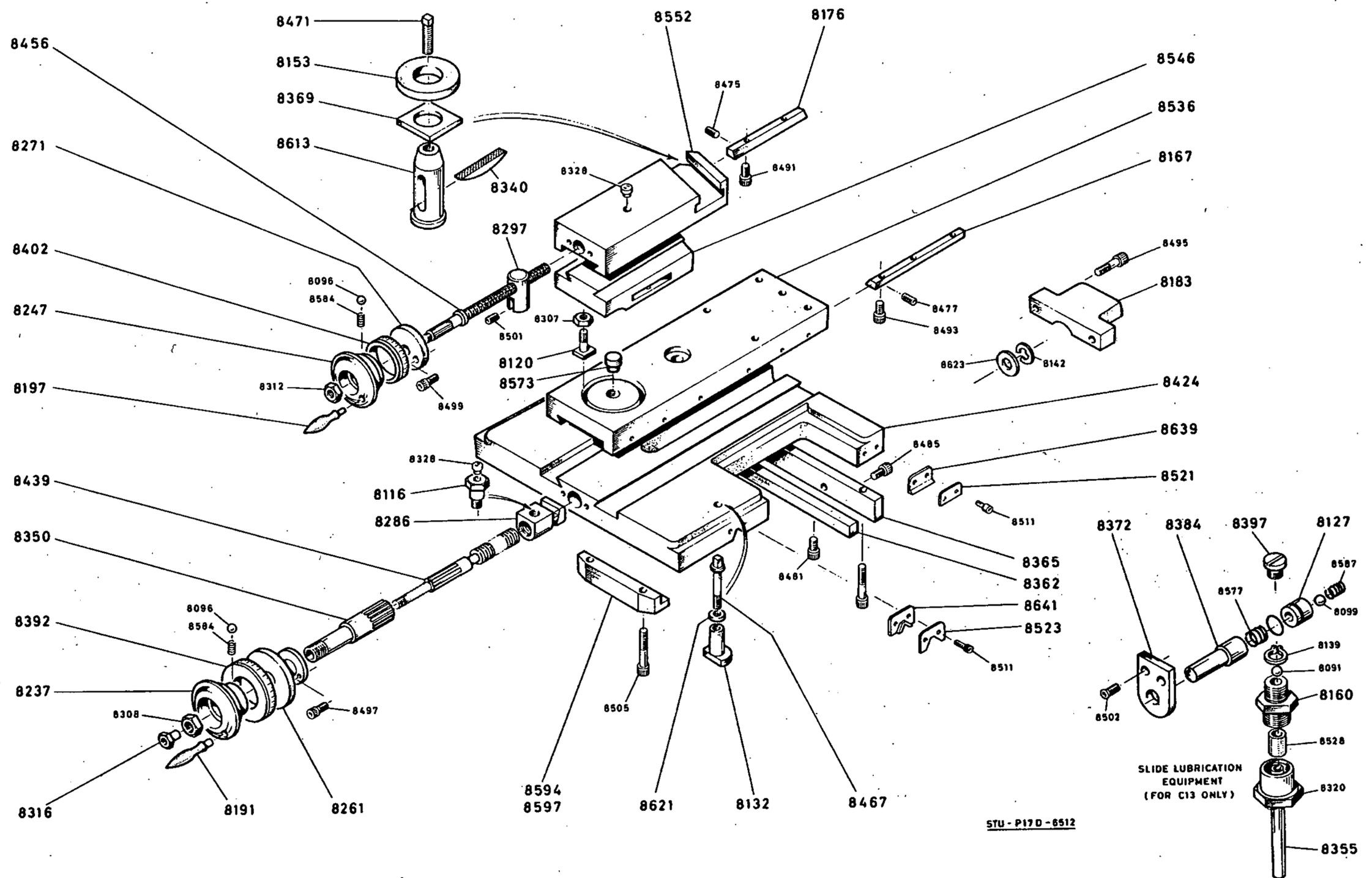
17

SPECIFICATIONS OF STANDARD ITEMS ARE GIVEN IN APPENDIX 1.



STU - P16D - 6512
 CLAUSING

SADDLE & SLIDES : gap bed

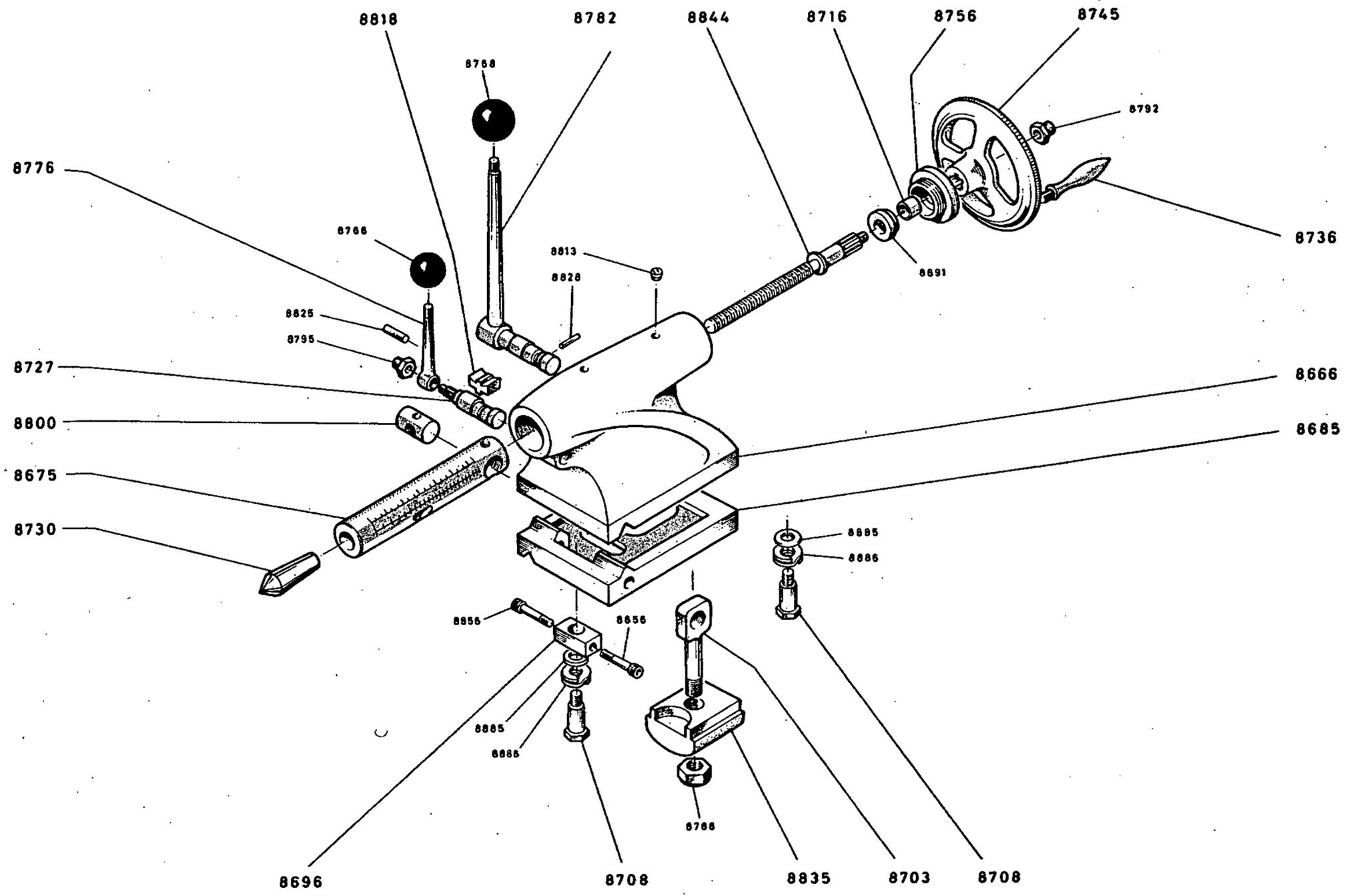


SADDLE & SLIDES : straight bed

Ref. Drg. STU-P17D-6512

SADDLE & SLIDES: Straight Bed Lathes

<u>Order No.</u>	<u>Description</u>	<u>Order No.</u>	<u>Description</u>
8116	Saddle Screw Nut Fixing Bolt	8573	Swivel Slide Spigot
8120	Swivel Slide Clamping Bolt & Nut	8594	Saddle Front Strip (A-Bed)
8127	Lubricating Valve Bush	8597	Saddle Front Strip (B-Bed)
8132	Saddle Locking Clamp C/W Pins	8613	Toolholder & Toolscrew
8153	Toolholder Collar	8621	Saddle Lock-Screw Washer
8160	Lubricating Union	8639	Bedway Wipers, Flat (2)
8167	Cross-Slide Gibs (2)	8641	Bedway Wipers, Vee (2)
8176	Top-Slide Gib		
8183	Cross-Slide Screw Guard		
8191	Cross-Slide Handwheel Handle (Chromed)	<u>STANDARD ITEMS</u>	
8197	Top-Slide Handwheel Handles (Chromed) (2)	8091	Lubricating Connector Ball
8237	Cross-Slide Handwheel C/W Handle	8096	Index Ring Pressure Balls (6)
8247	Top-Slide Handwheel C/W Handles	8099	Lubricating Valve Ball
8261	Cross-Slide Screw Keep (Chromed)	8139	Lubricating Connector Ball Clip
8271	Top-Slide Screw Keep (Chromed)	8142	Cross-Slide Screw Washer Clip
8286	Cross-Slide Nut Assembly	8307	Swivel Slide Clamp Bolt Nuts (2)
8297	Top-Slide Screw Nut	8308	Cross-Slide Handwheel Nut
8316	Cross-Slide Screw Retaining Nut	8312	Top-Slide Handwheel Nut
8340	Toolholder Swivel Piece	8320	Lubricating Union Nut
8350	Cross-Slide Screw Pinion	8327	Lubricating Valve Bush Oil-Ring
8355	Lubricating Stand-Pipe	8328	Oiler-Nipples (9)
8362	Saddle Rear Strip Adjusting Plate	8475	Cross-Slide Gib Adjusting Screws (4)
8365	Saddle Rear Strip Fixed Plate	8477	Top-Slide Gib Adjusting Screws (6)
8369	Toolholder Clamp Plate	8481	Saddle Rear Strip Adjusting Screws (4)
8372	Lubricating Plunger Plate	8485	Saddle Rear Strip Lock Screws (2)
8379	Oil Filler Plug	8491	Cross-Slide Gib Securing Screws (4)
8384	Lubricating Plunger	8493	Top-Slide Gib Securing Screws (6)
8392	Cross-Slide Index Ring	8495	Screw Guard Securing Screws (2)
8402	Top-Slide Index Ring	8497	Cross-Slide Keep Screws (2)
8425	Saddle Casting	8499	Top-Slide Keep Screws (2)
8439	Cross-Slide Screw & Nut	8501	Top-Slide Screw-Nut Screw
8456	Top-Slide Screw & Nut	8502	Plunger Plate Screws (2)
8467	Saddle Locking Screw	8505	Saddle Front Strip Securing Screws (2)
8471	Toolholder Tool Screw	8509	Saddle Rear Strip Securing Screws (2)
8521	Bedway Wiper Shield, Flat (2)	8511	Bed Wiper Securing Screws (8)
8523	Bedway Wiper Shield, Vee (2)	8528	Lubricating Union Sleeve
8536	Cross-Slide Assembly	8577	Lubricating Plunger Spring
8546	Swivel Slide Assembly (Angular)	8584	Index Ring Springs (6)
8558	Top-Slide Assembly (Angular)	8587	Lubricating Valve Spring
		8623	Cross-Slide Screw Washer



STU - P18C - 6512
CLAUSING ONLY

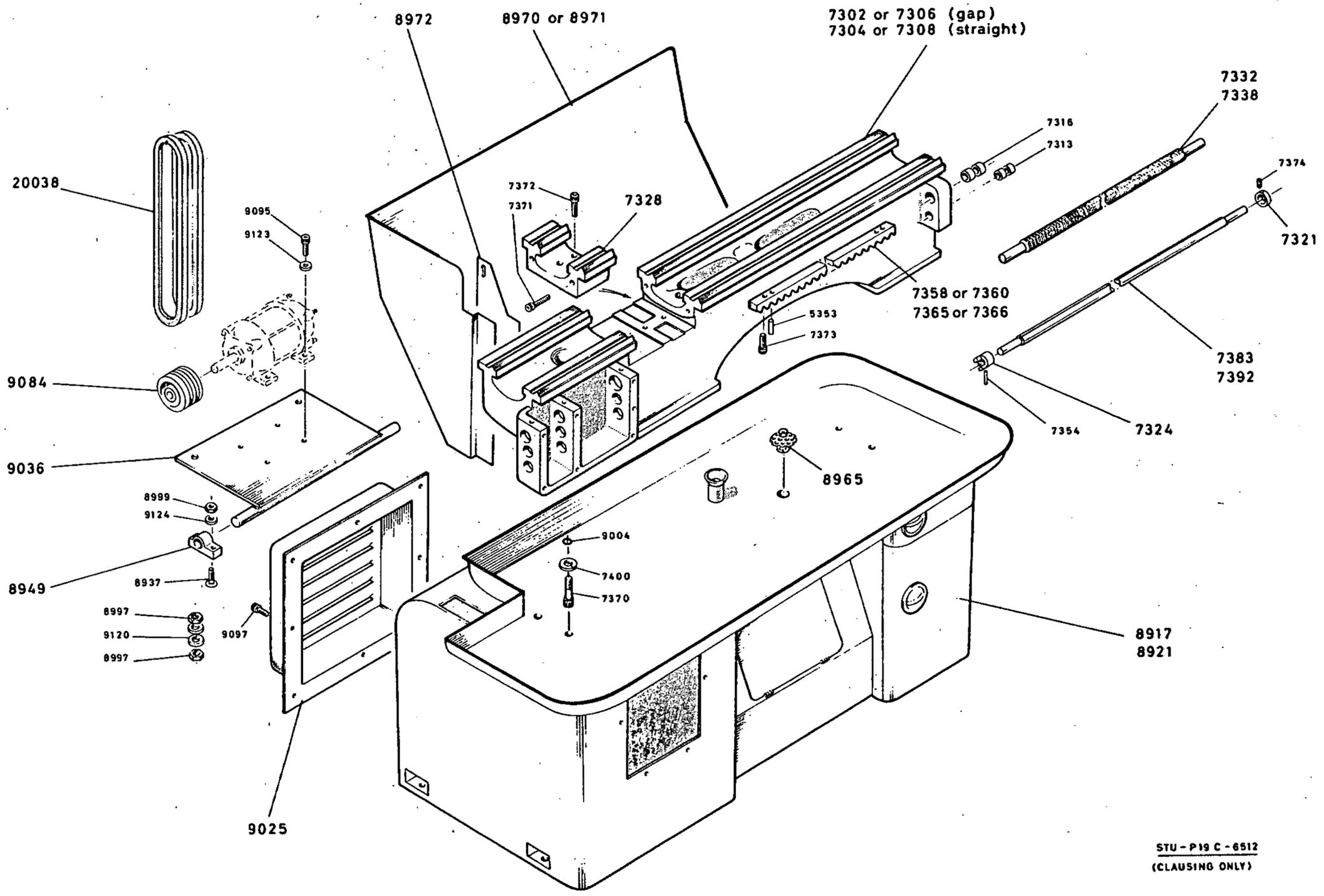
TAILSTOCK

Ref. Drg. STU-P18C-6512

TAILSTOCK

<u>Order No.</u>	<u>Description</u>	<u>Order No.</u>	<u>Description</u>
8666	Tailstock Main Casting	8835	Tailstock Clamp Plate
8675	Tailstock Barrel	8844	Barrel Screw
8685	Tailstock Base	<u>STANDARD ITEMS</u>	
8696	Set-over Block	8691	Barrel Screw Thrust Bearing 04-882
8703	Clamping Eye Bolt	8766	Barrel Clamp Lever Knob 18-838
8708	Base Retaining Bolts (2)	8768	Tailstock Clamp Lever Knob 18-836
8716	Tailstock Keep Bush	8788	Clamp Plate Retaining Nut 21-675
8727	Barrel Clamp Cam	8792	Handwheel Retaining Nut 21-687
8730	No. 3 Morse Centre	8795	Barrel Clamp Lever Nut 22-696
8736	Handwheel Handle (Chromed)	8813	Oiler Nipples (2) 23-124
8745	Handwheel Assembly (Chromed)	8825	Clamp Lever Stop Pin 24-577
8756	Screw Keep (Chromed)	8828	Clamp Lever Stop Pin 24-558
8776	Barrel Clamp Lever (Chromed)	8856	Set-over Screws (2) 60-369
8782	Clamp Lever Assembly (Chromed)	8885	Base Bolt Plain Washers (2) 85-695
8800	Barrel Screw Nut	8886	Base Bolt Spring Washers (2) 84-716
8818	Barrel Clamp Pad		

SPECIFICATIONS OF STANDARD ITEMS ARE GIVEN IN APPENDIX 1



STU - P19 C - 6512
 (CLAUSING ONLY)

CABINET, BED & TRANSMISSION

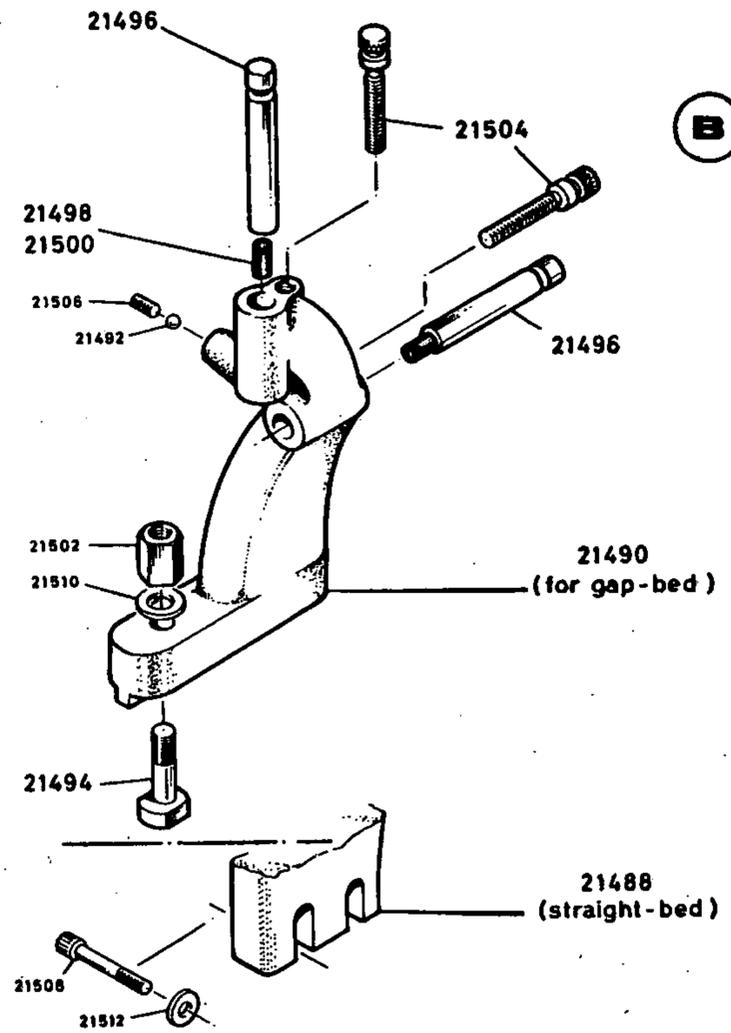
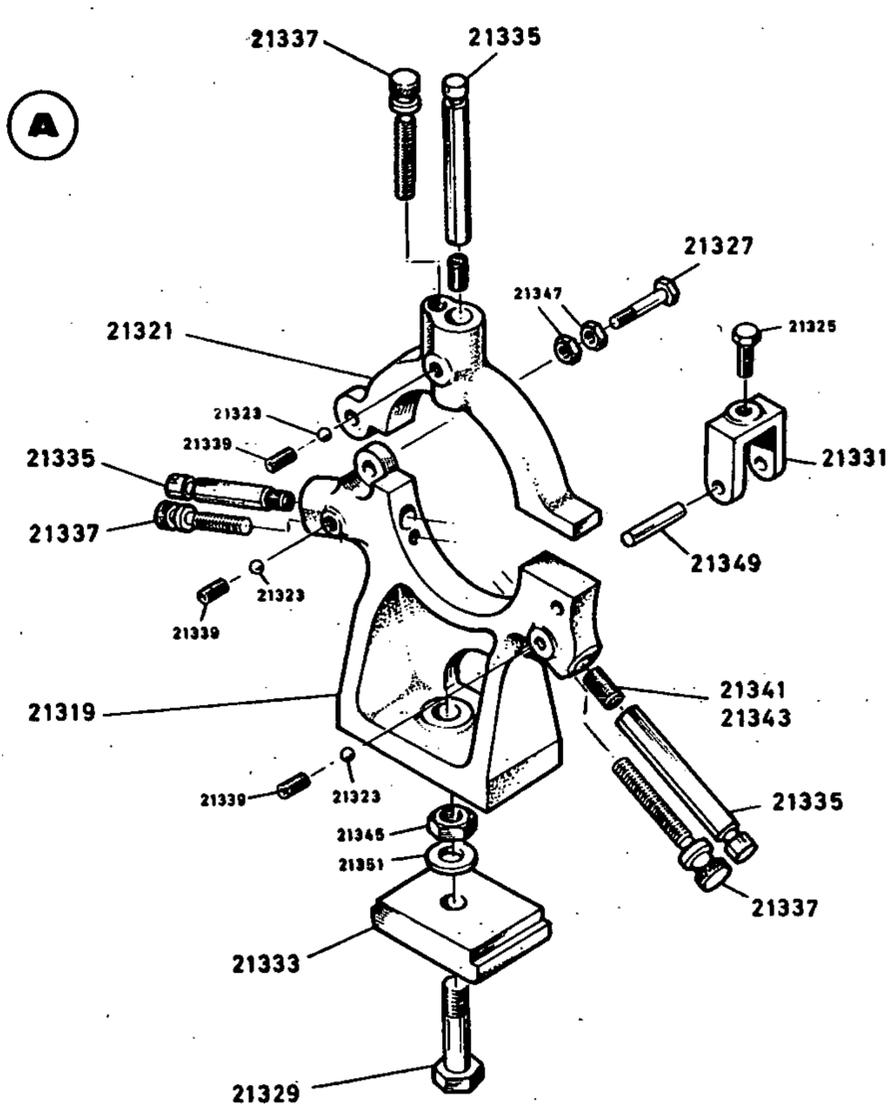
Ref. Drg. STU-P19C-6512

CABINET, BED & TRANSMISSION

CLAUSING 13

<u>Order No.</u>	<u>Description</u>	<u>Order No.</u>	<u>Description</u>
7302	Bed, Gap Type 24 in.	9084	Motor Pulley
7304	Bed, Straight 24 in.	20038	Vee Belts (2)
7306	Bed, Gap Type 36 in.		
7308	Bed, Straight 36 in.		
7321	Feedshaft Tail-end Collar	<u>STANDARD ITEMS</u>	
7324	Feedshaft Coupling	7313	Feedshaft Tail-end Bushes (2) 10-923
7328	Gap Piece	7316	Leadscrew Tail-end Bushes (2) 10-936
7332	Leadscrew, 24 in.		(or 10-940 - 1 off)
7338	Leadscrew, 36 in.	7353	Rack Locating Pins (3) 24-539
7358	Rack (A-Bed), 24 in.	7354	Coupling Securing Pin 14-659
7360	Rack (B-Bed), 24 in.	7370	Bed Securing Screws (6) 50-260
7365	Rack (A-Bed), 36 in.	7371	Gap Piece Screws, Horizontal (2) 48-246
7366	Rack (B-Bed), 36 in.	7372	Gap Piece Screws, Vertical (2) 48-242
7383	Feedshaft, 24 in.	7373	Rack Securing Screws (2) 45-201
7392	Feedshaft, 36 in.	7374	Feedshaft Collar Lock Screw 59-350
8917	Cabinet Assembly (13 x 24 in.)	7400	Bed Screw Spring Washers (6) 84-706
8921	Cabinet Assembly (13 x 36 in.)	8937	Platform Bracket Bolts (2) 88-055
8949	Motor Platform Brackets (2)	8997	Platform Adjusting Nuts (4) 20-639
8965	Coolant Drain Filter	8999	Platform Bracket Bolt Nuts (2) 22-698
8970	Back Splash Guard (24 in.)	9004	Bed Bolt Oil Rings (6) 27-060
8971	Back Splash Guard (36 in.)	9095	Motor Securing Screws (4) 47-229
8972	Splash Guard Fixed Plate	9097	Cover Plate Securing Screws (7) 45-202
9025	Louvre Plate	9120	Platform Adjusting Nut Washers (4) 85-695
9036	Motor Platform	9123	Motor Screw Washers (4) 85-692
		9124	Platform Bracket Ball Washers (2) 84-704

SPECIFICATIONS OF STANDARD ITEMS ARE GIVEN IN APPENDIX 1



ACC-ST-P101-65

STEADIES (steady rests)

Ref. Drg. ACC-ST-P101-65

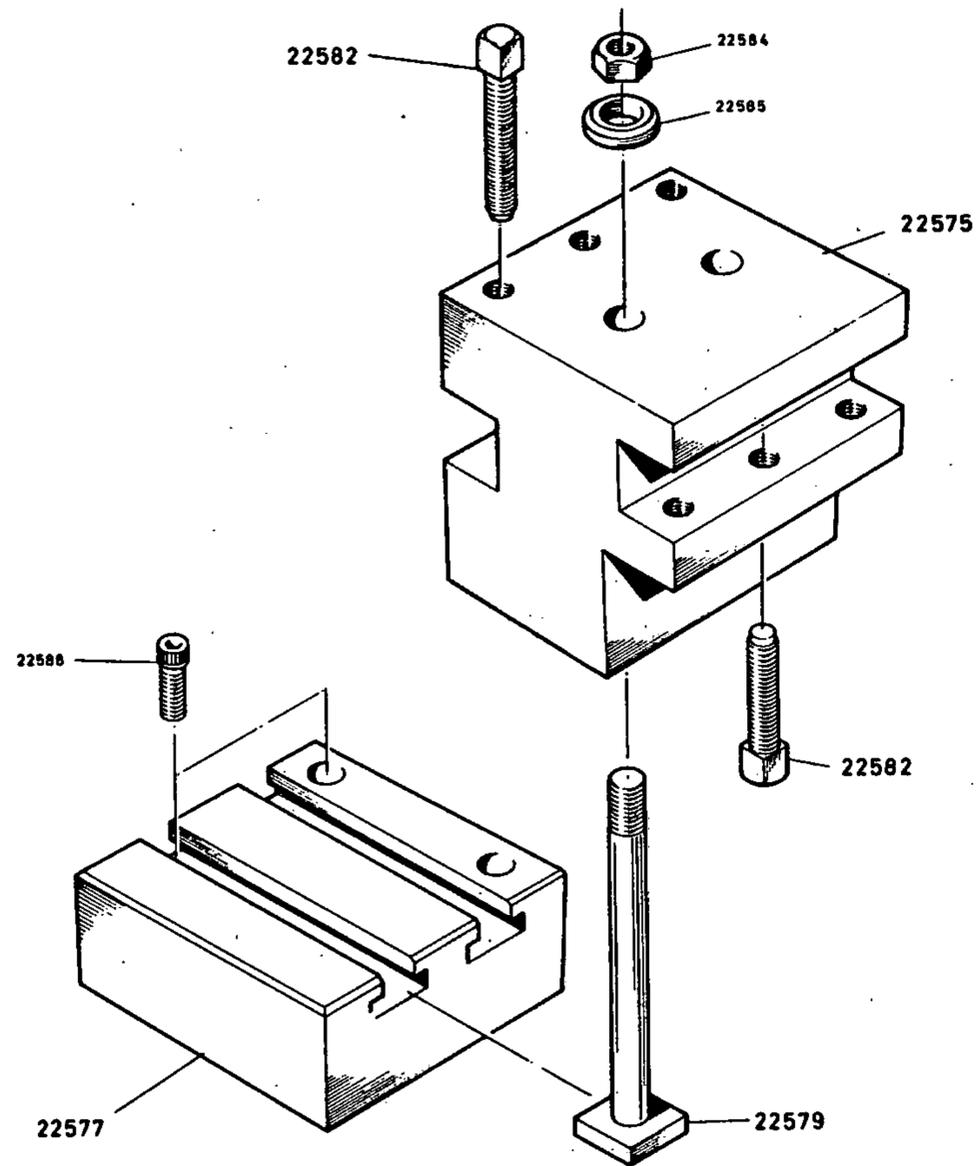
STEADIES (Steady Rests)

A - STATIONARY STEADY

B - TRAVELLING STEADY

<u>Order No.</u>	<u>Description</u>		<u>Order No.</u>	<u>Description</u>	
21319	Steady Base Casting		21347	Pivot Bolt Locknuts (2)	20-637
21321	Steady Top Casting		21351	Clamp Plate Bolt Washer	85-695
21327	Pivot Bolt		21488	Steady Casting (Straight)	
21329	Clamp Plate Bolt		21490	Steady Casting (Gap)	
21331	Clamp Fork		21494	Steady Securing Bolt	
21333	Steady Clamp Plate		21496	Steady Fingers (2)	
21335	Steady Fingers (3)		21498	Finger Inserts, Plastic (2)	
21337	Finger Adjusting Screws (3)		21500	Finger Inserts, Bronze (2)	
21341	Finger Inserts, Plastic (3)		21504	Finger Adjusting Screws (2)	
21343	Finger Inserts, Bronze (3)				
21349	Clamp Fork Hinge Pin		<u>STANDARD ITEMS</u>		
<u>STANDARD ITEMS</u>			21492	Finger Locking Balls (2)	01-793
21323	Finger Locking Balls (3)	01-793	21502	Steady Securing Bolt Nut	20-612
21325	Clamp Fork Bolt	08-112	21506	Finger Locking Screws (2)	60-365
21339	Finger Locking Screws (3)	60-363	21508	Steady Securing Screws (2)	49-253
21345	Clamp Plate Bolt Nut	20-614	21510	Securing Bolt Washer	85-695
			21512	Securing Screw Washers (2)	85-694

SPECIFICATIONS OF STANDARD ITEMS ARE GIVEN IN APPENDIX 1



ACC-ST - P103-65

REAR TOOLPOST

Ref. Drg. ACC-ST-P103-65

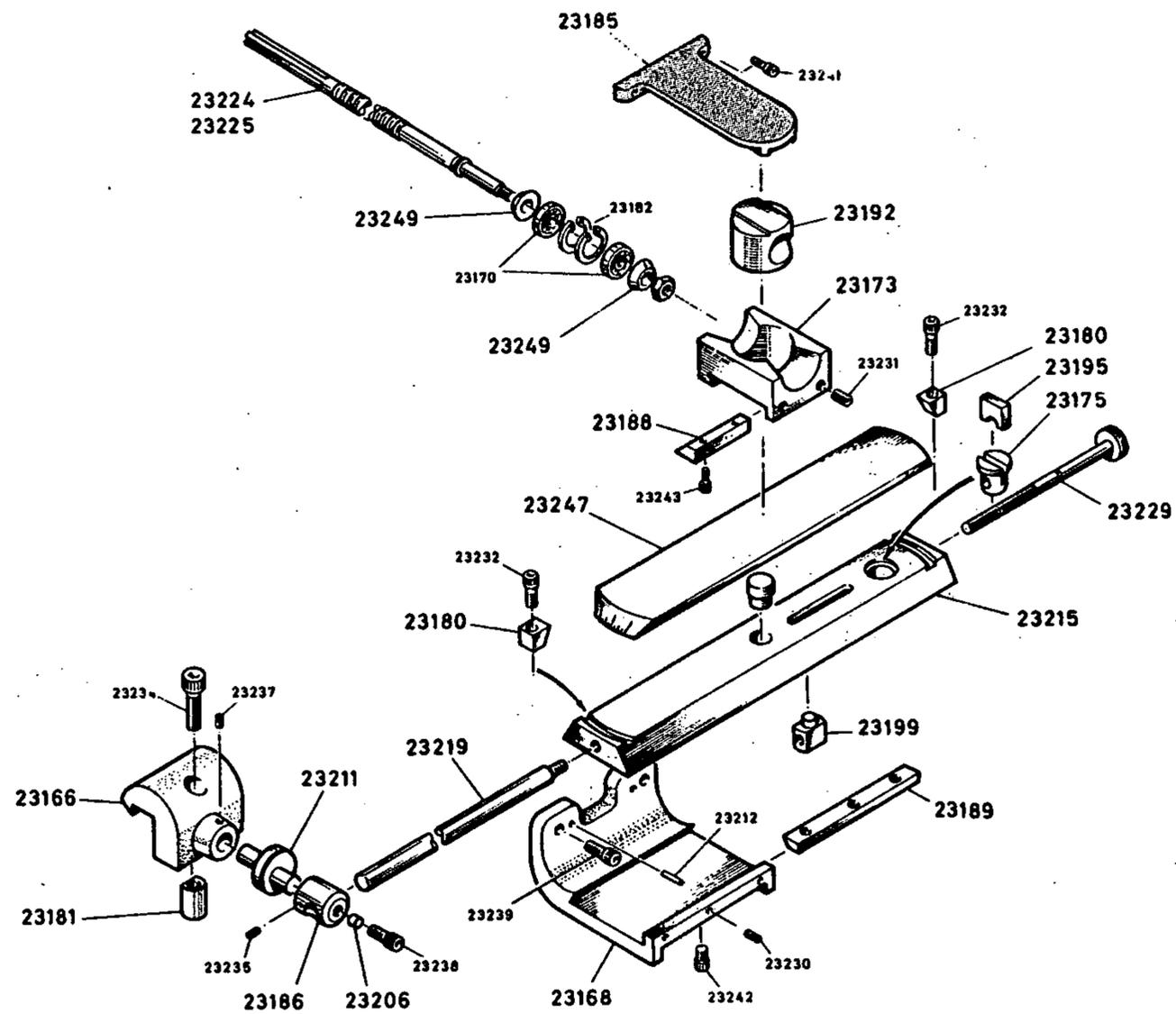
REAR TOOLPOST

<u>Order No.</u>	<u>Description</u>
22575	Toolpost Block
22577	Base Plate
22579	Toolpost Clamping Bolts (2)
22582	Tool Screws (6)

STANDARD ITEMS

22584	Clamping Bolt Nuts (2)	21-661
22585	Clamping Bolt Washers (2)	85-694
22588	Base Plate Securing Screws (4)	47-228

SPECIFICATIONS OF STANDARD ITEMS ARE GIVEN IN APPENDIX 1



ACC-ST-P104-65

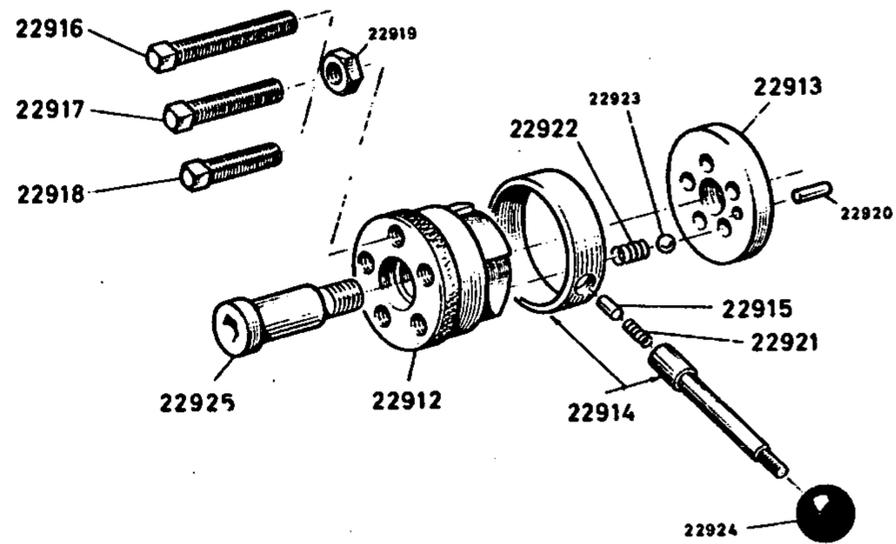
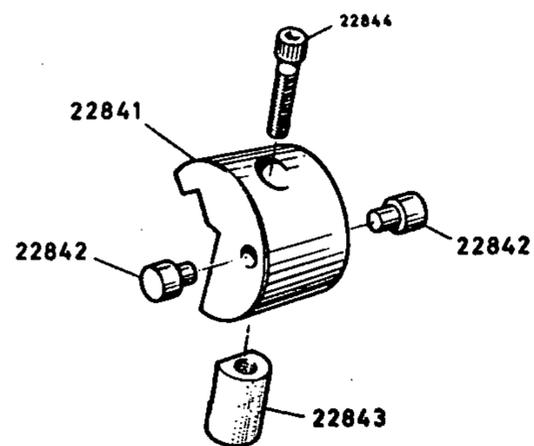
TELESCOPIC TAPER TURNING ATTACHMENT

Ref. Drg. ACC-ST-P104-65

TELESCOPIC TAPER TURNING ATTACHMENT

<u>Order No.</u>	<u>Description</u>	<u>Order No.</u>	<u>Description</u>
23166	Anchor Bracket	23247	Swivel Slide
23168	Taper Turner Bracket	23249	Bearing Thrust Washers
23173	Slide Block		
23175	Adjusting Screw Keep Bush		
23180	Swivel-slide Clamps (2)		
23181	Anchor Bracket Clamp Piece		
23185	Cross Slide Extension		
23186	Anchor Bracket Extension		
23188	Slide Block Gib		
23189	Bracket Gib		
23192	Bearing Housing		
23195	Adjusting Screw Keep		
23199	Swivel Slide Adjusting Screw Nut		
23206	Connecting Rod Clamp Pad		
23211	Eccentric Pin		
23215	Fixed Plate		
23217	Swivel Slide Pivot		
23219	Connecting Rod		
23224	Cross Slide Screw (Standard)		
23225	Cross Slide Screw (Metric)		
		<u>STANDARD ITEMS</u>	
		23170	Cross Slide Screw Bearings 02-872
		23182	Bearing Retaining Clips 12-766
		23197	Thrust Bearing Adjusting Nut 21-660
		23212	Bracket Locating Pins 24-542
		23230	Bracket Gib Adjusting Screws 58-345
		23231	Slide Block Gib Adjusting Screws 58-345
		23232	Swivel Slide Clamping Screws 46-213
		23234	Anchor Bracket Locking Screw 48-242
		23235	Bracket Extension Locking Screw 59-350
		23237	Eccentric Pin Locking Screw 60-361
		23238	Connecting Rod Locking Screw 48-237
		23239	Bracket Securing Screws 46-214
		23241	Extension Securing Screws 46-216
		23242	Bracket Gib Securing Screws 45-202
		23243	Slide Block Gib Securing Screws 45-202

SPECIFICATIONS OF STANDARD ITEMS ARE GIVEN IN APPENDIX 1



ACC-ST-P105-65

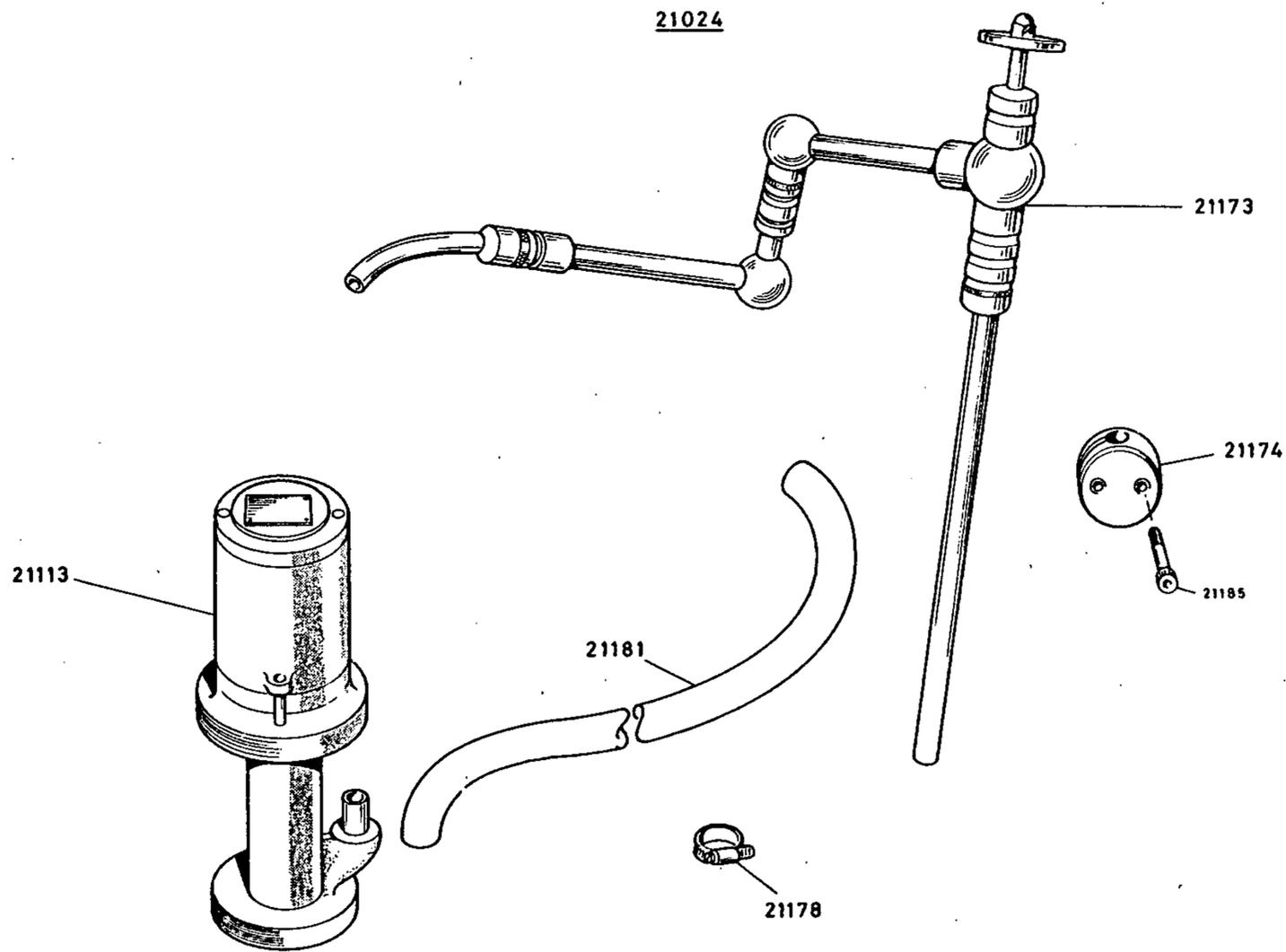
BED STOPS (single & 5-pos.)

Ref. Drg. ACC-ST-P105-65

BED STOPS (Single & 5-Position)

<u>Order No.</u>	<u>Description</u>	<u>Order No.</u>	<u>Description</u>
22841	Body, Single Type	22921	Ratchet Lever Spring
22842	Stop Pads (2)	22922	Turret Locating Ball Spring
22843	Clamping Piece	22925	Turret Spindle
22912	5-Position Turret	<u>STANDARD ITEMS</u>	
22913	Turret Plate		
22914	Ratchet Lever & Ring Assembly	22844	Locking Screw 64-391
22915	Ratchet Locating Pin	22919	Stop Screw Locknuts 20-636
22916	Stop Screw, Long	22920	Turret Plate Locating Pin 24-541
22917	Stop Screw, Medium	22923	Turret Locating Ball 01-788
22918	Stop Screw, Short	22924	Ratchet Lever Knob 18-840

SPECIFICATIONS OF STANDARD ITEMS ARE GIVEN IN APPENDIX 1



ACC - ST - P110 - 65

COOLANT UNIT

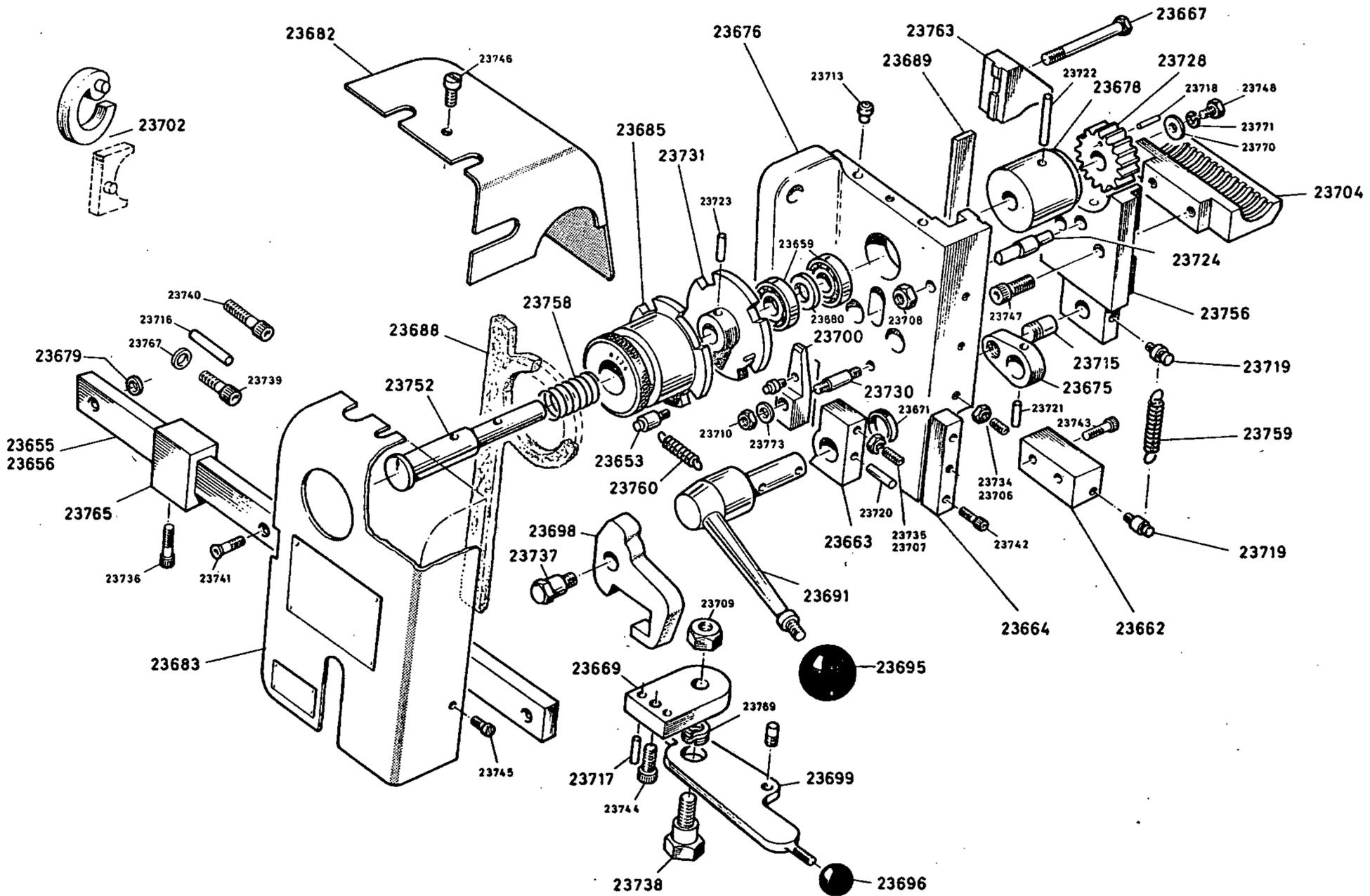
CLA 13-1-66

Ref. Drg. ACC-ST-P110-65

COOLANT UNIT

<u>Order No.</u>	<u>Description</u>	<u>Order No.</u>	<u>Description</u>	
21024	Coolant Unit c/w Fittings (State Electric Supply)	21174	Feedpipe Bracket	
		21178	Hose Clips (2)	
		21181	Flexible Hose	
21113	Coolant Pump (State Details on Existing Pump)	<u>STANDARD ITEMS</u>		
21173	Feedpipe Assembly, c/w Bracket	21185	Pipe Bracket Screws (2)	45-206

SPECIFICATIONS OF STANDARD ITEMS ARE GIVEN IN APPENDIX 1



ACC - ST - P111 - 85

RAPID THREADER : English

Ref. Drg. ACC-St-P111-65

RAPID THREADER: English

<u>Order No.</u>	<u>Description</u>	<u>Order No.</u>	<u>Description</u>	
23653	Locking-Lever Spring Anchor	23759	Main Spring	
23655	Stop Bar (26 in.)	23760	Locking-Lever Spring	
23656	Stop Bar (46 in.)	23763	Top Steady	
23662	Spring Anchor-Block	23765	Adjustable Stop	
23663	Handle-Shaft Block			
23664	Cover Spacing-Block	<u>STANDARD ITEMS</u>		
23667	Top Steady Bolt	23659	Dial Shaft Bearings (2)	02-890
23669	Knock-Off Lever Bracket	23671	Handle-Shaft Bush	10-006
23675	Handle-Shaft Cam	23706	Nuts for Gib Adjusting Screw	22-690
23676	Threader Main Casting	23707	Nut for Locking-Lever Adjusting Screw	22-690
23678	Pinion Driving Collar	23708	Nut for Top-Steady Screw	22-689
23679	Stop-Bar Spacers	23709	Knock-Off Lever Securing Nut	22-691
23680	Dial-Shaft Bearing Spacer	23710	Locking-Lever Securing Nut	22-689
23682	Back Cover	23713	Oiler Nipples	23-124
37 23683	Front Cover	23716	Attachment Location Pin	14-131
23685	Setting Dial Assembly	23718	Pinion Locating Pin	24-046
23688	Cover Gasket (Felt)	23720	Shaft-Block Securing Pin	24-543
23689	Slide Gib	23721	Shaft-Cam Securing Pin	24-543
23691	Handle	23722	Pinion Driving-Collar Pin	25-608
23695	Handle Knob	23723	Dial Plate Securing Pin	24-543
23696	Knock-Off Lever Knob	23734	Slide-Gib Adjusting Screws (3)	73-195
23698	Disengaging Lever	23735	Locking-Lever Adjusting Screw	73-473
23699	Knock-Off Lever & Pin	23736	Adjustable-Stop Locking Screw	73-489
23700	Locking-Lever & Pin	23739	Attachment Securing Screw (Short)	47-227
23702	Half-Nut Lever Lock (C-Type, for Lathe	23740	Attachment Securing Screws (Long)	47-228
23704	Half-Nut (Threader Unit)	23741	Stop-Bar Securing Screws	73-520
23715	Slide Driving Pin	23742	Spacing-Block Securing Screws	46-214
23717	Lever-Bracket Locating Pins	23743	Anchor-Block Securing Screws	73-197
23719	Main Spring Retaining Pins (2)	23744	Bracket Securing Screw	73-199
23724	Selector Pin	23745	Front-Cover Securing Screws	73-472
23728	Pinion	23746	Back-Cover Securing Screws	73-472
23730	Locking-Lever Pivot	23747	Half-Nut Securing Screws (2)	73-196
23731	Dial Plate	23748	Pinion Securing Screw	73-198
23737	Disengaging-Lever Pivot Screw	23767	Securing Screw Washer	85-692
23738	Knock-Off Lever Pivot Screw	23769	Knock-Off Lever Spring-Washer	87-714
23752	Dial Shaft	23770	Pinion Securing-Screw Washer	85-720
23752	Slide	23771	Pinion-Screw Spring Washer	84-701
23758	Dial Spring	23773	Locking-Lever Securing Nut Washer	85-691

Appendix 1

STANDARD PARTS REFERENCE LIST

Description	Section	Description	Section
Balls	01	10 x 24 t.p.i. Cap Screws - Hex Socket Head	45
Bearings - Ball Journal	02	1/4 in. U.N.C. Cap Screws - Hex Socket Head	46
Bearings - Roller	03	5/16 in. U.N.C. Cap Screws - Hex Socket Head	47
Bearings - Thrust	04	3/8 in. U.N.C. Cap Screws - Hex Socket Head	48
Belts - Flat	05	7/16 in. U.N.C. Cap Screws - Hex Socket Head	49
Belts - Timing	06	1/2 in. U.N.C. Cap Screws - Hex Socket Head	50
Belts - Vee	07	5/8 in. U.N.C. Cap Screws - Hex Socket Head	51
Bolts - Hex Head	08	3/4 in. U.N.C. Cap Screws - Hex Socket Head	52
Brake Shoes	09	10 x 24 t.p.i. C/Sunk Screws - Hex Socket Head	53
Bushes	10	1/4 in. U.N.C. C/Sunk Screws - Hex Socket Head	54
Circlips External	11	5/16 in. U.N.C. C/Sunk Screws - Hex Socket Head	55
Circlips Internal	12	3/8 in. U.N.C. C/Sunk Screws - Hex Socket Head	56
Circlips Special	13	1/2 in. U.N.C. C/Sunk Screws - Hex Socket Head	57
Spring Dowels	14	10 x 24 t.p.i. Cup Point Screws - Hex Socket Head	58
Electrical - Miscellaneous	15	1/4 in. U.N.C. Cup Point Screws - Hex Socket Head	59
Handles	16	5/16 in. U.N.C. Cup Point Screws - Hex Socket Head	60
Keys	17	3/8 in. U.N.C. Cup Point Screws - Hex Socket Head	61
Knobs	18	7/16 in. U.N.C. Cup Point Screws - Hex Socket Head	62
Motors	19	1/2 in. U.N.C. Cup Point Screws - Hex Socket Head	63
Nuts	20	5/8 in. U.N.C. Cup Point Screws - Hex Socket Head	64
Lock Nuts	21	3/4 in. U.N.C. Cup Point Screws - Hex Socket Head	65
Nuts - Miscellaneous	22	10 x 24 t.p.i. 1/2 Dog Screws - Hex Socket Head	66
Oilers	23	1/4 in. U.N.C. 1/2 Dog Screws - Hex Socket Head	67
Mills Pins	24	5/16 in. U.N.C. 1/2 Dog Screws - Hex Socket Head	68
Pins - Miscellaneous	25	3/8 in. U.N.C. 1/2 Dog Screws - Hex Socket Head	69
Oil Rings	26	1/2 in. U.N.C. 1/2 Dog Screws - Hex Socket Head	70
Oil Rings - Miscellaneous	27	5/8 in. U.N.C. 1/2 Dog Screws - Hex Socket Head	71
Rivets	28	3 B.A. B.A. Screws - Hex Socket Head	72
	29	Special Screws	73
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	31		75
	32		76
	33		77
	34		78
	35	Oil Seals	79
	36	Oil Sights	80
	37	Spanners & Wrenches	81
	38	Springs	82
	39	Switches	83
	40	Locking Washers	84
	41	Standard Washers	85
	42	Washers Miscellaneous	86
	43	Thread Inserts	87
	44	Miscellaneous	88
		Third shaft control assembly	1000

6521-3
6521-4

**Section 01
Balls**

Part Ref.	Description
01.185	1/8 Dia. Steel Ball.
01.786	5/32 Dia. Steel Ball.
01.787	3/16 Dia. Steel Ball.
01.788	1/4 Dia. Steel Ball.
01.789	5/16 Dia. Steel Ball.
01.790	3/8 Dia. Steel Ball.
01.791	9/16 Dia. Steel Ball.
01.792	5/8 Dia. Steel Ball.
01.793	1/4 Dia. Phosphor Bronze.
01.794	7/32 Dia. Steel Ball.
01.795	9/32 Dia. Steel Ball.
01.796	11/32 Dia. Steel Ball.
01.797	13/32 Dia. Steel Ball.
01.798	7/16 Dia. Steel Ball.
01.799	15/32 Dia. Steel Ball.
01.800	1/2 Dia. Steel Ball.
01.801	17/32 Dia. Steel Ball.
01.802	19/32 Dia. Steel Ball.

**Section 02
Bearings - Ball Journal**

Part Ref.	Description
02.032	2 1/4 Dia. Hoffmann. XLS.
02.033	2 1/2 Dia. Hoffmann. XLS.
02.061	2 in. Dia. Hoffmann. XLS.
02.180	2 1/8 x 1 1/8 x 3/8 Hoffmann. S11.
02.872	10 m/m x 28 m/m x 8 m/m. Hoffmann. A10.
02.873	13 m/m x 30 m/m x 7 m/m. Hoffman. A13.
02.874	15 m/m x 35 m/m x 8 m/m. Hoffmann. A15.
02.875	3/4 i.d. x 1 1/8 o.d. Hoffmann LS.8.
02.876	7/8 i.d. x 1 1/8 o.d. x 3/8 wide Hoffmann. S9V2.
02.877	1 in. i.d. x 2 in. o.d. x 3/8 wide Hoffmann. S10V2.
02.878	50 m/m x 80 m/m x 16 m/m Hoffmann.
02.879	2 in. i.d. x 3 5/16 o.d. Hoffmann. XLS.2.

**Section 03
Bearings - Roller**

Part Ref.	Description
03.038	181/118/181190 XH Gamet.
03.039	131095/131152 X Gamet.
03.079	HK1512 Ina Needle Roller.
03.183	1 1/8 x 7/8 x 3/4 Ina SC1412 Needle Roller.
03.184	1 in. x 3/4 x 1/2 Ina SC128 Needle Roller.
03.187	1 1/2 x 1 1/4 x 1 Ina SC2016 Needle Roller.
03.189	1 1/2 x 1 1/4 x 3/4 Ina SC2012 Needle Roller.
03.191	1 1/8 x 1 1/8 x 3/4 Ina SC1812 Needle Roller.
03.886	21 m/m x 15 m/m x 16 m/m HIHK.1516 Ina Needle.
03.887	1 in. x 3/4 x 3/4 Ina SC1212 Needle Roller.
03.888	7/8 x 1 1/16 x 3/4 Ina SC1112 Needle Roller.
03.889	35 m/m x 28 m/m x 20 m/m HK.2820 Ina Needle.
03.890	3/8 bore x 9/16 o.d. x 1/2 in. long Ina SC68 Needle Roller.
03.891	9/16 bore x 3/4 o.d. x 1/2 in. long Ina SC98 Needle Roller.

Section 03 continued

Part Ref.	Description
03.892	17 m/m x 40 m/m x 13 m/m KGS Taper roller KE30203
03.893	17 m/m bore Gamet taper roller 4 micron series plain.
03.894	1 1/16 bore x 7/8 o.d. x 1/2 in. long Ina SC118 Needle Roller.
03.895	20 m/m bore Gamet taper roller 4 micron series collar.
03.896	25 m/m x 52 m/m x 16 m/m KGS taper roller KE30205
03.897	1 in. x 1/4 x 3/4 Ina SC1612 Needle Roller.
03.898	1 1/8 x 1 1/8 x 1/2 Ina SC188 Needle Roller.
03.899	50 m/m x 90 m/m x 29 m/m Gamet taper roller.
03.900	2 3/8 bore x 4 o.d. x 1 in. long type 113060/113101 XH Gamet.
03.901	140085/140140 H. Gamet.
03.902	120063/1200110 H. Gamet.
03.910	111,050/111,090 Gamet.
03.911	131,095/131,152 X Gamet.
03.912	111,050/111,090 C Gamet.
03.913	112,045/112,085 C Gamet.
03.914	L181,118/181,190 XH Gamet.
03.916	SC1816 Ina Needle Roller.

**Section 04
Bearings - Thrust**

Part Ref.	Description
04.081	A & K 1528 R & M.
04.882	WSP 5/16 in. Hoffmann.
04.883	HR 7/8 in. Hoffmann.
04.884	W 1 1/8 in. Hoffmann.
04.885	W 1 1/4 in. Hoffmann.
04.886	SCT 5/8 in. R & M.
04.887	SHT 7/8 in.
04.888	LT 1 1/4 in. R & M.

**Section 05
Belts - Flat**

Part Ref.	Description
05.953	55 in. x 1 1/2 x 3 m/m Thk. 271-21 FW.
05.954	58 in. x 1 1/2 x 3 m/m Thk. 271-21 FW.
05.955	71 in. x 1 1/2 x 3 m/m Thk. 271-21 FW.
05.956	79 in. x 1 1/2 x 3 m/m Thk. 271-21 FW.
05.957	80 in. x 1 1/2 x 3 m/m Thk. 271-21 FW.
05.958	82 in. x 1 1/2 x 3 m/m Thk. 271-21 FW.
05.959	83 in. x 1 1/2 x 3 m/m Thk. 271-21 FW.
05.960	73 in. Lewis & Tyler.
05.961	75 in. Lewis & Tyler.
05.962	76 in. x 1 1/2 x 3 m/m Thk. 271-21 FW.
05.963	78 in. x 1 1/2 x 3 m/m Thk. 271-21 FW.
05.964	80 in. Lewis & Tyler.
05.965	81 in. Lewis & Tyler.
05.966	81 in. x 1 1/2 x 3 m/m Thk. 271-21 FW.

**Section 06
Belts - Timing**

Part Ref.	Description
06.950	150L x 1/2 in. wide 40T.
06.951	187L x 1/2 in. wide 50T.
06.952	210L x 1/2 in. wide 56T.
06.953	225L x 1/2 in. wide 60T.
06.954	240L x 1/2 in. wide 64T.
06.955	255L x 1/2 in. wide 68T.
06.956	270L x 1/2 in. wide 72T.
06.957	285L x 1/2 in. wide 76T.
06.958	300L x 1/2 in. wide 80T.
06.959	322L x 1/2 in. wide 86T.
06.960	210L x 1 1/2 in. wide.
06.961	345L x 1/2 in. wide 92T.
06.962	360L x 1 1/2 in. wide.
06.963	367L x 1/2 in. wide 98T.
06.964	390L x 1/2 in. wide 104T.
06.965	420L x 1/2 in. wide 112T.
06.966	450L x 1/2 in. wide 120T.
06.967	480L x 1/2 in. wide 128T.
06.968	240H x 1 1/2 in. wide 48T.
06.969	270H x 1 1/2 in. wide 54T.
06.970	300H x 1 1/2 in. wide 60T.
06.971	330H x 1 1/2 in. wide 66T.
06.972	360H x 1 1/2 in. wide 72T.
06.973	390H x 1 1/2 in. wide 78T.
06.974	420H x 1 1/2 in. wide 84T.
06.975	450H x 1 1/2 in. wide 90T.
06.976	480H x 1 1/2 in. wide 96T.
06.977	510H x 1 1/2 in. wide 102T.
06.978	540H x 1 1/2 in. wide 108T.

**Section 07
Belts - Vee**

Part Ref.	Description
07.142	A34 x 1/2 in. wide x 5/16 Thk.
07.929	A30 x 1/2 in. wide x 5/16 Thk.
07.930	A31 x 1/2 in. wide x 5/16 Thk.
07.931	A32 x 1/2 in. wide x 5/16 Thk.
07.932	A33 x 1/2 in. wide x 5/16 Thk.
07.934	A35 x 1/2 in. wide x 5/16 Thk.
07.935	A36 x 1/2 in. wide x 5/16 Thk.
07.936	A37 x 1/2 in. wide x 5/16 Thk.
07.937	A38 x 1/2 in. wide x 5/16 Thk.
07.938	A39 x 1/2 in. wide x 5/16 Thk.
07.939	A40 x 1/2 in. wide x 5/16 Thk.
07.940	A41 x 1/2 in. wide x 5/16 Thk.
07.941	A42 x 1/2 in. wide x 5/16 Thk.
07.942	A43 x 1/2 in. wide x 5/16 Thk.
07.943	A44 x 1/2 in. wide x 5/16 Thk.
07.944	A45 x 1/2 in. wide x 5/16 Thk.
07.945	A46 x 1/2 in. wide x 5/16 Thk.
07.946	A47 x 1/2 in. wide x 5/16 Thk.
07.947	A48 x 1/2 in. wide x 5/16 Thk.
07.948	A49 x 1/2 in. wide x 5/16 Thk.
07.949	A53 x 1/2 in. wide x 5/16 Thk.
07.950	A71 x 1/2 in. wide x 5/16 Thk.
07.951	A78 x 1/2 in. wide x 5/16 Thk.
07.952	A79 x 1/2 in. wide x 5/16 Thk.
07.953	A80 x 1/2 in. wide x 5/16 Thk.
07.954	A82 x 1/2 in. wide x 5/16 Thk.
07.955	A50 x 1/2 in. wide x 5/16 Thk.
07.956	A51 x 1/2 in. wide x 5/16 Thk.
07.957	A52 x 1/2 in. wide x 5/16 Thk.
07.958	A54 x 1/2 in. wide x 5/16 Thk.
07.959	A55 x 1/2 in. wide x 5/16 Thk.
07.960	A56 x 1/2 in. wide x 5/16 Thk.
07.961	A57 x 1/2 in. wide x 5/16 Thk.
07.962	A58 x 1/2 in. wide x 5/16 Thk.
07.963	A60 x 1/2 in. wide x 5/16 Thk.
07.964	A61 x 1/2 in. wide x 5/16 Thk.
07.965	A62 x 1/2 in. wide x 5/16 Thk.
07.966	A63 x 1/2 in. wide x 5/16 Thk.
07.967	A64 x 1/2 in. wide x 5/16 Thk.
07.968	A65 x 1/2 in. wide x 5/16 Thk.

6521-3
6521-4

Section 07 continued

Part Ref.	
07.969	A66 x 1/2 in. wide x 5/16 Thk.
07.970	A68 x 1/2 in. wide x 5/16 Thk.
07.971	A70 x 1/2 in. wide x 5/16 Thk.
07.972	A72 x 1/2 in. wide x 5/16 Thk.
07.973	A74 x 1/2 in. wide x 5/16 Thk.
07.974	A75 x 1/2 in. wide x 5/16 Thk.
07.975	A76 x 1/2 in. wide x 5/16 Thk.
07.976	A81 x 1/2 in. wide x 5/16 Thk.
07.977	A84 x 1/2 in. wide x 5/16 Thk.
07.978	A85 x 1/2 in. wide x 5/16 Thk.
07.979	A87 x 1/2 in. wide x 5/16 Thk.
07.980	A90 x 1/2 in. wide x 5/16 Thk.
07.981	A92 x 1/2 in. wide x 5/16 Thk.
07.982	A93 x 1/2 in. wide x 5/16 Thk.
07.983	A94 x 1/2 in. wide x 5/16 Thk.
07.984	A96 x 1/2 in. wide x 5/16 Thk.
07.985	A97 x 1/2 in. wide x 5/16 Thk.

Section 08
Bolts - Hex Head

Part Ref.	
08.002	10 x 24 t.p.i. x 1/2 in. long.
08.003	10 x 24 t.p.i. x 5/8 in. long.
08.004	10 x 24 t.p.i. x 3/4 in. long.
08.005	10 x 24 t.p.i. x 7/8 in. long.
08.006	10 x 24 t.p.i. x 1 in. long.
08.007	10 x 24 t.p.i. x 1 1/8 in. long.
08.008	10 x 24 t.p.i. x 1 1/4 in. long.
08.009	10 x 24 t.p.i. x 1 3/8 in. long.
08.010	10 x 24 t.p.i. x 1 1/2 in. long.
08.011	5/8 U.N.C. x 1 1/4 in. long.
08.012	3/8 U.N.C. x 2 in. long.
08.013	1/2 U.N.C. x 1 1/4 in. long.
08.014	1/2 U.N.C. x 1 1/2 in. long.
08.015	1/2 U.N.C. x 1 3/4 in. long.
08.016	1/2 U.N.C. x 2 in. long.
08.017	5/8 U.N.C. x 3 1/2 in. long.
08.018	3/8 U.N.C. x 1 1/2 in. long.
08.019	5/8 U.N.C. x 3 in. long.
08.020	1/2 U.N.C. x 2 1/4 in. long.
08.021	3/8 U.N.C. x 4 in. long.
08.022	1/2 U.N.C. x 3 1/2 in. long.
08.023	10 x 24 t.p.i. x 1 5/8 in. long.
08.024	10 x 24 t.p.i. x 1 3/4 in. long.
08.025	10 x 24 t.p.i. x 1 7/8 in. long.
08.026	10 x 24 t.p.i. x 2 in. long.
08.027	10 x 24 t.p.i. x 2 3/8 in. long.
08.028	10 x 24 t.p.i. x 2 1/4 in. long.
08.029	10 x 24 t.p.i. x 2 5/8 in. long.
08.030	10 x 24 t.p.i. x 2 1/2 in. long.
08.031	1/4 U.N.C. x 1/2 in. long.
08.032	1/2 U.N.C. x 5/8 in. long.
08.033	1/4 U.N.C. x 3/4 in. long.
08.034	1/4 U.N.C. x 7/8 in. long.
08.035	1/4 U.N.C. x 1 in. long.
08.036	1/4 U.N.C. x 1 1/8 in. long.
08.037	1/4 U.N.C. x 1 1/4 in. long.
08.038	1/4 U.N.C. x 1 3/8 in. long.
08.039	1/4 U.N.C. x 1 1/2 in. long.
08.040	1/4 U.N.C. x 1 5/8 in. long.
08.041	1/4 U.N.C. x 1 3/4 in. long.
08.042	1/4 U.N.C. x 1 7/8 in. long.
08.043	1/4 U.N.C. x 2 in. long.
08.044	1/4 U.N.C. x 2 1/8 in. long.
08.045	1/4 U.N.C. x 2 1/4 in. long.
08.046	1/4 U.N.C. x 2 3/8 in. long.
08.047	1/4 U.N.C. x 2 1/2 in. long.
08.048	5/16 U.N.C. x 3/4 in. long.
08.049	5/16 U.N.C. x 7/8 in. long.
08.050	5/16 U.N.C. x 1 in. long.
08.051	5/16 U.N.C. x 1 1/8 in. long.
08.052	5/16 U.N.C. x 1 1/4 in. long.
08.053	5/16 U.N.C. x 1 3/8 in. long.
08.054	5/16 U.N.C. x 1 1/2 in. long.
08.055	5/16 U.N.C. x 1 5/8 in. long.

6521-3
6521-4

Section 08 continued

Part Ref.	
08.056	5/16 U.N.C. x 1 1/4 in. long.
08.057	5/16 U.N.C. x 1 1/8 in. long.
08.058	5/16 U.N.C. x 2 in. long.
08.059	5/16 U.N.C. x 2 1/8 in. long.
08.060	5/16 U.N.C. x 2 1/4 in. long.
08.061	5/16 U.N.C. x 2 3/8 in. long.
08.062	5/16 U.N.C. x 2 1/2 in. long.
08.063	5/16 U.N.C. x 2 5/8 in. long.
08.064	5/16 U.N.C. x 2 3/4 in. long.
08.065	5/16 U.N.C. x 2 7/8 in. long.
08.066	5/16 U.N.C. x 3 in. long.
08.067	3/8 U.N.C. x 3/4 in. long.
08.068	3/8 U.N.C. x 7/8 in. long.
08.069	3/8 U.N.C. x 1 in. long.
08.070	3/8 U.N.C. x 1 1/8 in. long.
08.071	3/8 U.N.C. x 1 1/4 in. long.
08.072	3/8 U.N.C. x 1 1/2 in. long.
08.073	3/8 U.N.C. x 1 3/4 in. long.
08.074	3/8 U.N.C. x 1 7/8 in. long.
08.075	3/8 U.N.C. x 2 in. long.
08.076	3/8 U.N.C. x 2 1/4 in. long.
08.077	3/8 U.N.C. x 2 1/2 in. long.
08.078	3/8 U.N.C. x 2 3/4 in. long.
08.079	3/8 U.N.C. x 2 5/8 in. long.
08.080	3/8 U.N.C. x 2 3/4 in. long.
08.081	3/8 U.N.C. x 2 7/8 in. long.
08.082	3/8 U.N.C. x 3 in. long.
08.083	3/8 U.N.C. x 3 1/4 in. long.
08.084	3/8 U.N.C. x 3 1/2 in. long.
08.085	3/8 U.N.C. x 3 3/4 in. long.
08.086	1/2 U.N.C. x 3/4 in. long.
08.087	1/2 U.N.C. x 7/8 in. long.
08.088	1/2 U.N.C. x 1 in. long.
08.089	1/2 U.N.C. x 1 1/8 in. long.
08.090	1/2 U.N.C. x 1 1/4 in. long.
08.091	1/2 U.N.C. x 1 1/2 in. long.
08.092	1/2 U.N.C. x 1 3/4 in. long.
08.093	1/2 U.N.C. x 2 in. long.
08.094	1/2 U.N.C. x 2 1/8 in. long.
08.095	1/2 U.N.C. x 2 1/4 in. long.
08.096	1/2 U.N.C. x 2 3/8 in. long.
08.097	1/2 U.N.C. x 2 1/2 in. long.
08.098	1/2 U.N.C. x 2 5/8 in. long.
08.099	1/2 U.N.C. x 3 in. long.
08.100	1/2 U.N.C. x 3 1/4 in. long.
08.101	1/2 U.N.C. x 3 1/2 in. long.
08.102	1/2 U.N.C. x 4 in. long.
08.103	1/2 U.N.C. x 4 1/4 in. long.
08.104	1/2 U.N.C. x 4 1/2 in. long.
08.105	1/2 U.N.C. x 4 3/4 in. long.
08.106	1/2 U.N.C. x 5 in. long.
08.107	1/2 U.N.C. x 5 1/4 in. long.
08.108	1/2 U.N.C. x 5 1/2 in. long.
08.109	1/2 U.N.C. x 5 3/4 in. long.
08.110	1/2 U.N.C. x 6 in. long.
08.111	5/8 U.N.C. x 1 in. long.
08.112	5/8 U.N.C. x 1 1/4 in. long.
08.113	5/8 U.N.C. x 1 1/2 in. long.
08.114	5/8 U.N.C. x 1 3/4 in. long.
08.115	5/8 U.N.C. x 2 in. long.
08.116	5/8 U.N.C. x 2 1/4 in. long.
08.117	5/8 U.N.C. x 2 1/2 in. long.
08.118	5/8 U.N.C. x 2 3/4 in. long.
08.119	5/8 U.N.C. x 3 in. long.
08.120	5/8 U.N.C. x 3 1/4 in. long.
08.121	5/8 U.N.C. x 4 in. long.
08.122	5/8 U.N.C. x 4 1/4 in. long.
08.123	5/8 U.N.C. x 4 1/2 in. long.
08.124	5/8 U.N.C. x 4 3/4 in. long.
08.125	5/8 U.N.C. x 5 in. long.
08.126	5/8 U.N.C. x 5 1/4 in. long.
08.127	5/8 U.N.C. x 5 1/2 in. long.
08.128	5/8 U.N.C. x 5 3/4 in. long.
08.129	5/8 U.N.C. x 6 in. long.
08.130	3/4 U.N.C. x 1 in. long.
08.131	3/4 U.N.C. x 1 1/4 in. long.
08.132	3/4 U.N.C. x 1 1/2 in. long.

Section 08 continued

Part ref.	
08.133	3/4 U.N.C. x 1 1/4 in. long.
08.134	3/4 U.N.C. x 2 in. long.
08.135	3/4 U.N.C. x 2 1/4 in. long.
08.136	3/4 U.N.C. x 2 1/2 in. long.
08.137	3/4 U.N.C. x 2 3/4 in. long.
08.138	3/4 U.N.C. x 3 in. long.
08.139	3/4 U.N.C. x 3 1/4 in. long.
08.140	3/4 U.N.C. x 3 1/2 in. long.
08.141	3/4 U.N.C. x 3 3/4 in. long.
08.142	3/4 U.N.C. x 4 in. long.
08.143	3/4 U.N.C. x 4 1/4 in. long.
08.144	3/4 U.N.C. x 4 1/2 in. long.
08.145	3/4 U.N.C. x 4 3/4 in. long.
08.146	3/4 U.N.C. x 5 in. long.
08.147	3/4 U.N.C. x 5 1/4 in. long.
08.148	3/4 U.N.C. x 5 1/2 in. long.
08.149	3/4 U.N.C. x 5 3/4 in. long.
08.150	3/4 U.N.C. x 6 in. long.
08.151	7/8 U.N.C. x 1 1/2 in. long.
08.152	7/8 U.N.C. x 1 3/4 in. long.
08.153	7/8 U.N.C. x 2 in. long.
08.154	7/8 U.N.C. x 2 1/4 in. long.
08.155	7/8 U.N.C. x 2 1/2 in. long.
08.156	7/8 U.N.C. x 2 3/4 in. long.
08.157	7/8 U.N.C. x 3 in. long.
08.158	7/8 U.N.C. x 3 1/4 in. long.
08.159	7/8 U.N.C. x 3 1/2 in. long.
08.160	7/8 U.N.C. x 3 3/4 in. long.
08.161	7/8 U.N.C. x 4 in. long.
08.162	7/8 U.N.C. x 4 1/4 in. long.
08.163	7/8 U.N.C. x 4 1/2 in. long.
08.164	7/8 U.N.C. x 4 3/4 in. long.
08.165	7/8 U.N.C. x 5 in. long.
08.166	7/8 U.N.C. x 5 1/4 in. long.
08.167	7/8 U.N.C. x 5 1/2 in. long.
08.168	7/8 U.N.C. x 5 3/4 in. long.
08.169	7/8 U.N.C. x 6 in. long.

Section 09
Brake Shoes

Part Ref.	
09.997	4 in. dia. for 6 in. lathe.
09.998	5 in. dia. for 7 1/2 in. lathe.
09.999	6 in. dia. for 8 1/2 in. lathe.

Section 10
Bushes

Part Ref.	
10.035	GH38 x 2 in. long.
10.909	FCT 211 x 5/8 in. long.
10.910	CT51 x 7/8 in. long.
10.911	CT10 x 3/4 in. long.
10.912	CT174 x 1/2 in. long.
10.913	CT174 x 5/8 in. long.
10.914	BS2 x 1 1/2 in. long.
10.915	CT174 x 3/4 in. long.
10.916	CT56 x 3/4 in. long.
10.917	CT174 x 1 in. long.
10.918	CT175 x 3/4 in. long.
10.919	CT175 x 1 1/4 in. long.
10.920	CT18 x 5/8 in. long.
10.921	CT15 x 5/8 in. long.
10.922	CT15 x 1 1/16 in. long.
10.960	CT18 x 3/4 in. long.
10.924	CT15 x 1 3/16 in. long.
10.925	CT15 x 1 5/16 in. long.
10.926	CT18 x 1 1/8 in. long.
10.927	CT15 x 1 1/4 in. long.
10.928	CT30 x 1 1/4 in. long.
10.929	BS15 x 1 in. long.
10.930	BS69 x 3/4 in. long.
10.931	BS69 x 1 5/16 in. long.
10.932	BS69 x 1 in. long.

Section 10 continued

Part Ref.	
10.933	BS69 x $1\frac{3}{16}$ in. long.
10.934	BS68 x $7\frac{1}{16}$ in. long.
10.935	BS69 x $9\frac{1}{16}$ in. long.
10.936	BS68 x $\frac{3}{4}$ in. long.
10.937	BS68 x $1\frac{1}{4}$ in. long.
10.938	BS69 x $\frac{7}{8}$ in. long.
10.939	BS68 x $1\frac{5}{8}$ in. long.
10.940	BS68 x $1\frac{3}{4}$ in. long.
10.941	BS2 x $\frac{5}{8}$ in. long.
10.942	FBS78 x $1\frac{5}{8}$ in. long.
10.943	BS2 x $1\frac{7}{16}$ in. long.
10.944	BS51 x 2 in. long.
10.945	BS2 x $\frac{7}{8}$ in. long.
10.946	GH6 x $\frac{7}{8}$ in. long.
10.947	BS68 x 2 in. long.
10.948	BS92 x $\frac{3}{4}$ in. long.
10.949	BS92 x 1 in. long.
10.950	BS92 x $1\frac{3}{16}$ in. long.
10.951	BS105 x $1\frac{9}{16}$ in. long.
10.952	CT15 x $\frac{3}{4}$ in. long.
10.953	CT15 x 1 in. long.
10.954	CT18 x 1 in. long.
10.955	CT18 x $1\frac{1}{4}$ in. long.
10.956	CT18 x $1\frac{3}{8}$ in. long.
10.957	CT40 x $\frac{7}{8}$ in. long.
10.958	CT40 x $1\frac{1}{4}$ in. long.
10.959	CT172 x $\frac{3}{8}$ in. long.
10.923	CT176 x $\frac{5}{8}$ in. long.
10.961	CT272 x $\frac{3}{4}$ in. long.
10.962	FBS233 x $\frac{5}{8}$ in. long.
10.963	FBS295 x $1\frac{1}{8}$ in. long.
10.964	FCT29 x $9\frac{1}{16}$ in. long.
10.965	FCT60 x $\frac{1}{2}$ in. long.
10.966	FCT73 x $\frac{7}{8}$ in. long.
10.967	FCT103 x $\frac{3}{4}$ in. long.
10.968	FCTSA x $\frac{5}{8}$ in. long.
10.969	FGH40A x $1\frac{3}{8}$ in. long.
10.970	FGH40A x $1\frac{1}{4}$ in. long.
10.971	GH6 x $1\frac{1}{8}$ in. long.
10.973	GH53 x $1\frac{1}{2}$ in. long.
10.974	FCT201 x $\frac{7}{8}$ in. long.
10.975	BS2 x $1\frac{9}{16}$ in. long.

Section 11
Circlips - External

Part ref.	
11.172	72 m/m (2.834) Anderton type 1400.
11.727	$\frac{1}{8}$ dia. Anderton type 1400.
11.728	$\frac{3}{16}$ dia. Anderton type 1400.
11.729	$\frac{1}{4}$ dia. Anderton type 1400.
11.730	$\frac{5}{16}$ dia. Anderton type 1400.
11.731	$\frac{3}{8}$ dia. Anderton type 1500 E303.
11.732	$1\frac{1}{4}$ dia. Anderton type 1400.
11.733	$1\frac{5}{16}$ dia. Anderton type 1400.
11.734	$1\frac{7}{16}$ dia. Anderton type 1400.
11.735	$1\frac{9}{16}$ dia. Anderton type 1500. E 380.
11.736	$\frac{1}{2}$ dia. Anderton type 1400.
11.737	$\frac{1}{2}$ dia. Anderton type 1500. E396.
11.738	$\frac{3}{8}$ dia. Anderton type 1400.
11.739	$1\frac{3}{8}$ dia. Anderton type 1400.
11.740	$\frac{1}{2}$ dia. Seeger.
11.741	$9\frac{1}{16}$ dia. Anderton type 1400.
11.742	$1\frac{7}{16}$ dia. Anderton type 1400.
11.743	$\frac{5}{8}$ in. dia. Anderton type 1400.
11.744	$1\frac{1}{16}$ dia. Anderton type 1400.
11.745	$\frac{3}{4}$ dia. Anderton type 1400.
11.746	$1\frac{1}{2}$ dia. Anderton type 1400.
11.747	$\frac{3}{4}$ dia. Seeger.
11.748	$1\frac{3}{16}$ dia. Anderton type 1400.

Section 11 continued

Part ref.	
11.749	$\frac{7}{8}$ dia. Anderton type 1400.
11.750	$1\frac{1}{16}$ dia. Anderton type 1400.
11.751	$1\frac{5}{16}$ dia. Anderton type 1400.
11.752	$1\frac{3}{16}$ dia. Anderton type 1400.
11.753	1 dia. Anderton type 1400.
11.754	$1\frac{1}{8}$ dia. Anderton type 1400.
11.755	$1\frac{1}{8}$ dia. Seeger.
11.756	$1\frac{1}{4}$ dia. Seeger.
11.757	2 dia. Anderton type 1400.
11.758	58 m/m (2.283) Anderton type 1400.
11.759	$1\frac{5}{8}$ dia. Anderton type 1400.
11.760	$1\frac{11}{32}$ dia. Anderton type 1400.
11.761	$2\frac{1}{16}$ dia. Anderton type 1400.
11.762	$2\frac{1}{8}$ dia. Anderton type 1400.
11.763	$2\frac{3}{16}$ dia. Anderton type 1400.
11.764	$2\frac{1}{4}$ dia. Anderton type 1400.
11.765	$2\frac{5}{16}$ dia. Anderton type 1400.
11.766	$2\frac{3}{8}$ dia. Anderton type 1400.
11.767	$2\frac{7}{16}$ dia. Anderton type 1400.
11.768	$2\frac{1}{2}$ dia. Anderton type 1400.
11.769	$2\frac{9}{16}$ dia. Anderton type 1400.
11.770	$2\frac{3}{8}$ dia. Anderton type 1400.
11.771	$2\frac{3}{4}$ dia. Anderton type 1400.
11.772	$2\frac{7}{8}$ dia. Anderton type 1400.
11.773	$2\frac{15}{16}$ dia. Anderton type 1400.
11.774	3 dia. Anderton type 1400.
11.775	$1\frac{9}{16}$ dia. Anderton type 1400.
11.776	$\frac{5}{8}$ dia. Anderton type 1500. E485.
11.777	$\frac{3}{4}$ dia. Anderton type 1500. E580.
11.778	$\frac{5}{16}$ dia. Anderton type 1500. E250.
11.779	$1\frac{11}{16}$ dia. Anderton type 1400.
11.780	$1\frac{3}{4}$ dia. Anderton type 1400.
11.781	$1\frac{13}{16}$ dia. Anderton type 1400.
11.782	$\frac{1}{4}$ dia. Anderton type 1500. E210.
11.783	$1\frac{7}{8}$ dia. Anderton type 1400.
11.784	$3\frac{1}{16}$ dia. Anderton type 1400.
11.785	$3\frac{1}{2}$ dia. Anderton type 1400.
11.786	$2\frac{3}{16}$ Dia. Anderton type 1400.
11.787	$3\frac{1}{4}$ dia. Anderton type 1400.
11.788	$3\frac{3}{8}$ dia. Anderton type 1400.
11.789	$3\frac{7}{16}$ dia. Anderton type 1400.
11.790	$3\frac{1}{2}$ dia. Anderton type 1400.
11.791	$3\frac{9}{16}$ dia. Anderton type 1400.
11.792	$3\frac{5}{8}$ dia. Anderton type 1400.
11.793	$3\frac{3}{4}$ dia. Anderton type 1400.
11.794	$3\frac{13}{16}$ dia. Anderton type 1400.
11.795	$3\frac{7}{8}$ dia. Anderton type 1400.
11.796	$3\frac{15}{16}$ dia. Anderton type 1400.
11.797	4 dia. Anderton type 1400.
11.798	$4\frac{1}{8}$ dia. Anderton type 1400.
11.799	$4\frac{1}{4}$ dia. Anderton type 1400.
11.800	$4\frac{3}{8}$ dia. Anderton type 1400.
11.801	$4\frac{1}{2}$ dia. Anderton type 1400.
11.802	$4\frac{5}{8}$ dia. Anderton type 1400.
11.803	$4\frac{3}{4}$ dia. Anderton type 1400.
11.804	$4\frac{7}{8}$ dia. Anderton type 1400.
11.805	5 dia. Anderton type 1400.
11.806	$5\frac{1}{8}$ dia. Anderton type 1400.
11.807	$5\frac{1}{4}$ dia. Anderton type 1400.

Section 11 continued

Part ref.	
11.808	$5\frac{3}{8}$ dia. Anderton type 1400.
11.809	$5\frac{1}{2}$ dia. Anderton type 1400.
11.810	$5\frac{5}{8}$ dia. Anderton type 1400.
11.811	$5\frac{3}{4}$ dia. Anderton type 1400.
11.812	$5\frac{7}{8}$ dia. Anderton type 1400.
11.813	6 dia. Anderton type 1400.
11.814	$6\frac{1}{8}$ dia. Anderton type 1400.
11.815	$6\frac{1}{4}$ dia. Anderton type 1400.
11.816	$6\frac{3}{8}$ dia. Anderton type 1400.
11.817	$6\frac{1}{2}$ dia. Anderton type 1400.
11.818	$6\frac{5}{8}$ dia. Anderton type 1400.
11.819	$6\frac{3}{4}$ dia. Anderton type 1400.
11.820	$6\frac{7}{8}$ dia. Anderton type 1400.
11.821	7 dia. Anderton type 1400.
11.822	$7\frac{1}{8}$ dia. Anderton type 1400.
11.823	$7\frac{1}{4}$ dia. Anderton type 1400.
11.824	$7\frac{3}{16}$ dia. Anderton type 1400.
11.825	$7\frac{5}{8}$ dia. Anderton type 1400.
11.826	$7\frac{1}{2}$ dia. Anderton type 1400.
11.827	$7\frac{3}{4}$ dia. Anderton type 1400.
11.828	$7\frac{7}{8}$ dia. Anderton type 1400.
11.829	8 dia. Anderton type 1400.
11.830	$1\frac{1}{16}$ dia. Anderton type 1500 E.52.
11.831	$\frac{3}{32}$ dia. Anderton type 1500
11.832	$\frac{3}{32}$ dia. Anderton type 1500 E74A.
11.833	$\frac{7}{64}$ dia. Anderton type 1500 E79.
11.834	$\frac{7}{64}$ dia. Anderton type 1500 E79A.
11.835	$\frac{1}{8}$ dia. Anderton type 1500 E95.
11.836	$\frac{1}{8}$ dia. Anderton type 1500 E95A.
11.837	$\frac{9}{64}$ dia. Anderton type 1500 E102.
11.838	$\frac{9}{64}$ dia. Anderton type 1500 E102A.
11.839	$\frac{9}{64}$ dia. Anderton type 1500 E105.
11.840	$\frac{9}{64}$ dia. Anderton type 1500 E110.
11.841	$\frac{5}{32}$ dia. Anderton type 1500 E116.
11.842	$\frac{5}{32}$ dia. Anderton type 1500 E116A.
11.843	$\frac{11}{64}$ dia. Anderton type 1500 E125.
11.844	$\frac{11}{64}$ dia. Anderton type 1500 E125A.
11.845	$\frac{3}{16}$ dia. Anderton type 1500 E125X.
11.846	$\frac{3}{16}$ dia. Anderton type 1500 E125XA.
11.847	$\frac{3}{16}$ dia. Anderton type 1500 E125XB.
11.848	$\frac{3}{16}$ dia. Anderton type 1500 E147.
11.849	$\frac{3}{16}$ dia. Anderton type 1500 E147A.
11.850	$\frac{3}{16}$ dia. Anderton type 1500 E147B.
11.851	$\frac{7}{32}$ dia. Anderton type 1500 E188.
11.852	$\frac{1}{4}$ dia. Anderton type 1500 E120A.
11.853	$\frac{5}{16}$ dia. Anderton type 1500 E250A.
11.854	$\frac{21}{64}$ dia. Anderton type 1500 E273.
11.855	$\frac{7}{16}$ dia. Anderton type 1500 E343.
11.856	1 dia. Anderton type 1500 E743
11.858	15 m/m (0.590) Anderton type 1400.

Section 12
Circlips - Internal

Part Ref.	
12.170	72 m/m (2.834) Seeger.
12.753	1/4 dia. Anderton type 1300.
12.754	5/16 dia. Anderton type 1300.
12.755	3/8 dia. Anderton type 1300.
12.756	7/16 dia. Anderton type 1300.
12.757	1/2 dia. Anderton type 1300.
12.758	9/16 dia. Anderton type 1300.
12.759	5/8 dia. Anderton type 1300.
12.760	11/16 dia. Anderton type 1300.
12.761	3/4 dia. Anderton type 1300.
12.762	13/16 dia. Anderton type 1300.
12.763	7/8 dia. Anderton type 1300.
12.764	15/16 dia. Anderton type 1300.
12.765	1 dia. Anderton type 1300.
12.766	28 m/m (1.102) Anderton type 1300.
12.767	40 m/m (1.574) Anderton type 1300.
12.768	1 1/8 Dia. Anderton type 1300.
12.769	52 m/m (2.047) Anderton type 1300.
12.770	80 m/m (3.150) Anderton type 1300.
12.771	83 m/m (3.267) Seeger.
12.772	4 dia. Anderton type 1300.
12.773	3.464 dia. Anderton type 1300.
12.774	2 1/8 dia. Anderton type 1300.
12.775	1 1/2 dia. Anderton type 1300.
12.776	1 3/8 dia. Anderton type 1300.
12.777	1 5/8 dia. Anderton type 1300.
12.778	1 1/4 dia. Anderton type 1300.
12.779	1 5/16 dia. Anderton type 1300.
12.780	1 3/8 dia. Anderton type 1300.
12.781	1 7/16 dia. Anderton type 1300.
12.782	1 1/2 dia. Anderton type 1300.
12.783	1 9/16 dia. Anderton type 1300.
12.784	1 5/8 dia. Anderton type 1300.
12.785	1 11/16 dia. Anderton type 1300.
12.786	1 3/4 dia. Anderton type 1300.
12.787	1 13/16 dia. Anderton type 1300.
12.788	1 15/16 dia. Anderton type 1300.
12.789	2 dia. Anderton type 1300.
12.790	2 1/16 dia. Anderton type 1300.
12.791	2 3/16 dia. Anderton type 1300.
12.792	2 1/4 dia. Anderton type 1300.
12.793	2 5/16 dia. Anderton type 1300.
12.794	2 3/8 dia. Anderton type 1300.
12.795	2 7/16 dia. Anderton type 1300.
12.796	2 1/2 dia. Anderton type 1300.
12.797	2 9/16 dia. Anderton type 1300.
12.798	2 5/8 dia. Anderton type 1300.
12.799	2 11/16 dia. Anderton type 1300.
12.800	2 3/4 dia. Anderton type 1300.
12.801	2 13/16 dia. Anderton type 1300.
12.802	2 7/8 dia. Anderton type 1300.
12.803	2 15/16 dia. Anderton type 1300.
12.804	3 dia. Anderton type 1300.

Section 12 continued

Part Ref.	
12.805	3 1/16 dia. Anderton type 1300.
12.806	3 3/8 dia. Anderton type 1300.
12.807	3 5/16 dia. Anderton type 1300.
12.808	3 1/4 dia. Anderton type 1300.
12.809	3 3/8 dia. Anderton type 1300.
12.810	3 7/16 dia. Anderton type 1300.
12.811	3 1/2 dia. Anderton type 1300.
12.812	3 9/16 dia. Anderton type 1300.
12.813	3 5/8 dia. Anderton type 1300.
12.814	3 3/4 dia. Anderton type 1300.
12.815	3 13/16 dia. Anderton type 1300.
12.816	3 7/8 dia. Anderton type 1300.
12.817	3 15/16 dia. Anderton type 1300.
12.818	4 1/8 dia. Anderton type 1300.
12.819	4 1/4 dia. Anderton type 1300.
12.820	4 3/8 dia. Anderton type 1300.
12.821	4 1/2 dia. Anderton type 1300.
12.822	4 5/8 dia. Anderton type 1300.
12.823	4 3/4 dia. Anderton type 1300.
12.824	4 7/8 dia. Anderton type 1300.
12.825	5 dia. Anderton type 1300.
12.826	5 1/8 dia. Anderton type 1300.
12.827	5 1/4 dia. Anderton type 1300.
12.828	5 3/8 dia. Anderton type 1300.
12.829	5 1/2 dia. Anderton type 1300.
12.830	5 5/8 dia. Anderton type 1300.
12.831	5 3/4 dia. Anderton type 1300.
12.832	5 7/8 dia. Anderton type 1300.
12.833	6 dia. Anderton type 1300.

Section 13
Circlips - Miscellaneous

Part Ref.	
13.190	Anderton Ref. E389.
13.732	3/8 dia. Anderton type 700/37A. Ext.
13.733	3/8 dia. Anderton type 500/37. Ext.
13.734	Anderton Ref. E468.
13.736	RS62. (Spirolax).
13.739	Salter Bowed Ext. type 5101/60.
13.742	9/16 dia. Salter Bowed Ext. type 5101/56.
13.746	Anderton type 1500/E520 Ext.
13.779	No. 62 Anderton type 10000 Ext.
13.780	5/8 dia. Anderton type 700 62A Ext.
13.781	5/8 dia. Salter Crescent 5103-62 Ext.
13.783	.437 dia. Anderton type 1400.
13.784	Anderton 1500 E 468 'E' type.
13.785	2 1/16 dia. Salter Bevelled type 5002/206 Int.
13.786	Anderton type 1200 Size 8 Int.
13.787	Salter 15/16 Ext type 5100/93.

Section 14
Spring Dowels

Part Ref.	
14.104	1/8 dia. x 3/4 in. long
14.125	1/4 dia. x 1 1/2 in. long.
14.131	1/4 dia. x 1 in. long.
14.135	1/8 dia. x 1/2 in. long.

Section 14 continued

Part ref.	
14.144	3/16 dia. x 1 1/4 in. long.
14.599	5/16 dia. x 1 3/8 in. long.
14.600	3/32 dia. x 5/16 in. long.
14.601	3/32 dia. x 3/8 in. long.
14.602	5/32 dia. x 3/8 in. long.
14.603	5/32 dia. x 1/2 in. long.
14.604	3/16 dia. x 1/2 in. long.
14.605	3/16 dia. x 3/4 in. long.
14.606	3/16 dia. x 7/8 in. long.
14.607	3/16 dia. x 1 5/16 in. long.
14.608	1/4 dia. x 2 5/8 in. long.
14.609	1/4 dia. x 1 1/4 in. long.
14.610	3/32 dia. x 1/4 in. long.
14.611	3/32 dia. x 3/8 in. long.
14.612	3/32 dia. x 7/16 in. long.
14.613	3/32 dia. x 1/2 in. long.
14.614	3/32 dia. x 9/16 in. long.
14.615	3/32 dia. x 1 1/16 in. long.
14.616	3/32 dia. x 3/4 in. long.
14.617	3/32 dia. x 1 3/16 in. long.
14.618	3/32 dia. x 7/8 in. long.
14.619	3/32 dia. x 1 5/16 in. long.
14.620	3/32 dia. x 1 in. long.
14.621	3/8 dia. x 3/8 in. long.
14.622	3/8 dia. x 7/16 in. long.
14.624	3/8 dia. x 9/16 in. long.
14.625	3/8 dia. x 5/8 in. long.
14.626	3/8 dia. x 1 1/16 in. long.
14.628	3/8 dia. x 1 3/16 in. long.
14.629	3/8 dia. x 7/8 in. long.
14.630	3/8 dia. x 1 5/16 in. long.
14.631	3/8 dia. x 1 in. long.
14.632	3/8 dia. x 1 1/8 in. long.
14.633	3/8 dia. x 1 1/4 in. long.
14.634	3/8 dia. x 1 3/8 in. long.
14.635	3/8 dia. x 1 1/2 in. long.
14.636	5/32 dia. x 9/16 in. long.
14.637	5/32 dia. x 5/8 in. long.
14.638	5/32 dia. x 1 1/16 in. long.
14.639	5/32 dia. x 3/4 in. long.
14.640	5/32 dia. x 1 3/16 in. long.
14.641	5/32 dia. x 7/8 in. long.
14.642	5/32 dia. x 1 5/16 in. long.
14.643	5/32 dia. x 1 in. long.
14.644	5/32 dia. x 1 1/8 in. long.
14.645	5/32 dia. x 1 1/4 in. long.
14.646	5/32 dia. x 1 3/8 in. long.
14.647	5/32 dia. x 1 1/2 in. long.
14.648	3/16 dia. x 9/16 in. long.
14.649	3/16 dia. x 5/8 in. long.
14.650	3/16 dia. x 1 1/16 in. long.
14.651	3/16 dia. x 1 3/16 in. long.
14.652	3/16 dia. x 1 in. long.
14.653	3/16 dia. x 1 1/8 in. long.
14.655	3/16 dia. x 1 3/8 in. long.
14.656	3/16 dia. x 1 1/2 in. long.
14.657	7/32 dia. x 3/4 in. long.
14.658	7/32 dia. x 7/8 in. long.
14.659	7/32 dia. x 1 in. long.
14.660	7/32 dia. x 1 1/8 in. long.
14.661	7/32 dia. x 1 1/4 in. long.
14.662	7/32 dia. x 1 3/8 in. long.
14.663	7/32 dia. x 1 1/2 in. long.
14.664	1/4 dia. x 3/4 in. long.
14.665	1/4 dia. x 7/8 in. long.
14.667	1/4 dia. x 1 1/8 in. long.
14.668	1/4 dia. x 1 1/4 in. long.
14.669	1/4 dia. x 1 3/8 in. long.
14.671	1/4 dia. x 1 5/8 in. long.
14.672	1/4 dia. x 1 7/8 in. long.
14.673	1/4 dia. x 2 in. long.
14.674	1/4 dia. x 2 3/8 in. long.
14.675	1/4 dia. x 2 1/4 in. long.
14.676	1/4 dia. x 2 5/8 in. long.
14.677	1/4 dia. x 2 1/2 in. long.
14.678	1/4 dia. x 2 3/4 in. long.
14.679	5/16 dia. x 3/4 in. long.

6521 3
6521 4

Section 14 continued

Part Ref.	
14.680	5/16 dia. x 7/8 in. long.
14.681	5/16 dia. x 1 in. long.
14.682	5/16 dia. x 1 1/8 in. long.
14.683	5/16 dia. x 1 1/4 in. long.
14.684	5/16 dia. x 1 1/2 in. long.
14.685	5/16 dia. x 1 5/8 in. long.
14.686	5/16 dia. x 1 3/4 in. long.
14.687	5/16 dia. x 1 7/8 in. long.
14.688	5/16 dia. x 2 in. long.
14.689	5/16 dia. x 2 1/4 in. long.
14.690	5/16 dia. x 2 1/2 in. long.
14.691	3/8 dia. x 3/4 in. long.
14.692	3/8 dia. x 7/8 in. long.
14.693	3/8 dia. x 1 in. long.
14.694	3/8 dia. x 1 1/8 in. long.
14.695	3/8 dia. x 1 1/4 in. long.
14.696	3/8 dia. x 1 3/8 in. long.
14.697	3/8 dia. x 1 1/2 in. long.
14.698	3/8 dia. x 1 5/8 in. long.
14.699	3/8 dia. x 1 3/4 in. long.
14.700	3/8 dia. x 1 7/8 in. long.
14.701	3/8 dia. x 2 in. long.
14.702	3/8 dia. x 2 1/4 in. long.
14.703	3/8 dia. x 2 1/2 in. long.

Section 15**Electrical - Miscellaneous**

Part Ref.	
15.084	5 amp Slydlok fuse & holder.
15.090	9v 1 1/2 amp screw type bulb.
15.091	1-1 Bulgin. LES Mod. lamp-holder.
15.101	Low volt plug socket.
15.149	A.E.I. 'T' junction 3/4 in. conduit thrd. type.

Section 16**Handles - Plastic**

Part Ref.	
16.841	3/8 bore x 2 1/2 in. long.
16.842	3/8 bore x 3 in. long. cream.
16.843	1 1/4 dia. x 1 11/16 cream.
16.844	3/8 bore x 3 in. long black.
16.845	1/2 bore x 1 3/4 in. long cream.
16.846	1/2 bore x 1 3/4 in. long black.
16.847	1 1/4 bore x 4 in. long.
16.848	1 3/4 dia. x 4 in. long.
16.849	1 1/4 dia. x 1 11/16 long black.

Section 17**Keys**

Part Ref.	
17.001	No.3 Woodruff.
17.002	No.9 Woodruff.
17.003	No.15 Woodruff.
17.004	No.21 Woodruff.
17.005	Letter 'B' Woodruff.
17.006	1/4 x 1/4 x 1 in. long Feather Key.
17.007	1/4 sq. x 1 1/4 in. long sq. Key.
17.008	Letter 'D' Woodruff.
17.009	1/4 x 1/4 x 1 1/4 in. long.
17.010	No.5 Woodruff.
17.011	No.7 Woodruff.
17.012	No.11 Woodruff.
17.013	No.18 Woodruff.
17.014	No.22 Woodruff.
17.015	No.24 Woodruff.
17.016	No.155 Woodruff.
17.017	Letter 'A' Woodruff.
17.018	Letter 'C' Woodruff.
17.019	Letter 'E' Woodruff.
17.020	Letter 'F' Woodruff.
17.021	Letter 'G' Woodruff.

Section 17 continued

Part Ref.	
17.023	3/16 x 3/16 x 1 1/4 plain.
17.024	1/4 x 1/4 x 2 1/2 plain.
17.025	5/16 x 5/16 x 3 plain.
17.026	5/16 x 3/8 x 3 1/4 in. plain
17.027	3/8 x 1/4 x 3 1/4 plain.
17.028	7/16 x 3/8 x 3 1/2 plain.
17.029	3/16 x 7/16 x 3/4 round end.
17.030	1/4 x 5/16 x 1 1/2 round end.
17.031	3/4 x .283 x 1.885 Woodruff.
17.032	3/16 x 1/2 Special.
17.033	1 1/4 x 3/8 x 1 1/4 Special.
17.059	3/16 x 3/16 x 1 1/4 in. long. Feather Key.

Section 18**Knobs - Plastic**

Part Ref.	
18.145	1 1/4 dia. x 3/8 U.N.C. Red.
18.830	1 1/2 dia. x 7/16 U.N.C. Black.
18.831	1 1/2 dia. x 7/16 U.N.C. Red.
18.832	1 1/2 x dia. x 3/8 U.N.C. Red.
18.833	1 1/2 dia. x 5/16 U.N.C. Red.
18.834	1 1/4 dia. x 7/16 U.N.C. Red.
18.835	1 1/4 dia. x 7/16 U.N.C. Black.
18.836	1 1/4 dia. x 3/8 U.N.C. Black.
18.837	1 1/4 dia. x 3/8 U.N.C. Cream.
18.838	1 dia. x 3/8 U.N.C. Black.
18.839	1 dia. x 3/8 U.N.C. Cream.
18.840	3/4 dia. x 1/4 U.N.C. Black.
18.841	Reverse and two speed switch knob.
18.843	1 1/4 dia. x 7/16 U.N.C. Transparent.
18.844	1 1/2 dia. x 1/2 U.N.C. Trans- parent.
18.845	1 3/4 dia. x 3/8 U.N.C. Red.

Section 19**Motors**

Part Ref.	
19.001	A.E.I. 1hp 190/210/346/380/3/50. BK.2410c. Speed 1400-1730.
19.003	A.E.I. 1hp 220/240/380/440/3/50. BK.2410c. Speed 1400-1730.
19.004	A.E.I. 1hp 220/240/50 BC. 3014. Speed 1400-1730.
19.005	A.E.I. 1hp 290/320/500/550/3/50/60. BK.2410c.
19.006	A.E.I. 1hp 500/550/3/50/60. BK.3210c. Speed 1400-1730.
19.007	L.D.C. 1 1/2 hp 200/220/1/50. R3K4. Speed 1400.
19.008	L.D.C. 1 1/2 hp 230/250/1/50. R3K4. Speed 1420.
19.009	L.D.C. 2 hp 200/220/1/50. DP3R3K. Speed 1400.
19.010	L.D.C. 2 hp 230/250/1/50. DP3R3K. Speed 1400.
19.011	L.D.C. 2 hp 230/250/1/50 DP3R3J. Speed 1400-1730.
19.012	L.D.C. 3 hp 190/220/3/50/60. Frame AC184.
19.013	L.D.C. 3 hp 200/220/346/380/3/50. Frame A2W. Speed 1400.
19.014	L.D.C. 3 hp 208/220/3/60. Frame AC184. Speed 1730.
19.015	L.D.C. 3 hp 220/3/60 Frame AC184. NEMA.
19.016	L.D.C. 3 hp 220/346/380/3/60. Frame AC184.
19.017	Brook 3hp 220/440/3/60. Frame 225-4R. Speed 1800.
19.018	L.D.C. 3hp 230/250/400/440/3/50. Frame A2W. Speed 1400.
19.019	L.D.C. 3hp 230/250/400/400/3/50/60- Frame AC184.
19.020	L.D.C. 3hp 260/280/3/50. Frame A2W. Speed 1400.
19.021	L.D.C. 3hp 400/3/60. Frame AC184. CSA.
19.022	L.D.C. 3hp 500/550/3/50. Frame A2W.
19.023	L.D.C. 3hp 550/3/50. Frame AC184.
19.024	L.D.C. 3hp 550/3/60. Frame AA215. Speed 1720.
19.025	L.D.C. 3hp 550/3/60. Frame AC184. CSA.
19.026	L.D.C. 3hp 550/3/60. Frame A3K. Speed 1720.
19.027	L.D.C. 5hp 200/220/346/380/3/50. Frame AC184. Speed 1400.
19.028	Brook 5hp 220/440/3/60. Frame 215-4R. Speed 1800.
19.029	L.D.C. 5hp 230/250/400/440/3/50. Frame AC184. Speed 1440.
19.030	L.D.C. 5hp 500/550/3/50. Frame AC184/5. Speed 1420.
19.031	L.D.C. 5hp 550/3/60. Frame HA215 Speed 1730.
19.032	Brook 5hp Speed 950.
19.033	L.D.C. 7 1/2 hp 200/220/346/380/3/50. Frame HH215 Speed 1440.
19.034	Brook 7 1/2 hp 220/440/3/60. Frame 254U. Speed 1800.
19.035	L.D.C. 7 1/2 hp 230/250/400/440/3/50. Frame AA215. Speed 1400.
19.036	L.D.C. 7 1/2 hp 500/550/3/50, Frame AA.215
19.037	L.D.C. 7 1/2 hp 550/3/60. Frame EA8K. Speed 1720.
19.038	A.E.I. 2/1hp 200/220/50/60. KNX.C164. Speed 2880-1440.
19.039	A.E.I. 2/1hp 346/50/60. KNX.C164. Speed 2880-1440.
19.040	A.E.I. 2/1hp 380/420/3/50/60. KNX.C164. Speed 2880/1440.
19.041	A.E.I. 2/1hp 500/550/50/60. KNX.C164. Speed 2880/1440.
19.042	Brook 3/1 1/2 hp 190/220/3/50. Frame C184. Speed 3000-1500.
19.043	Brook 3/1 1/2 hp 190/220/3/60. Frame C213. Speed 1800-900.
19.044	Brook 3/1 1/2 hp 190/220/3/60. Frame C184. Speed 3600-1800.
19.045	Brook 3/1 1/2 hp 190/220/3/50. Frame C213. Speed 1800-900.
19.046	Brook 3/1 1/2 hp 220/50. Frame C213. Speed 1500-750.

Section 19 continued

Section 19 continued

Part Ref.	Description
19.047	Newman 3/1½ hp 220/3/60. Frame 215.
19.048	Brook 3/1½ hp 380/3/50. Frame C215. Speed 1500-750.
19.049	L.D.C. 3/1½ hp 380/3/50. Frame C184. Speed 3000-1500.
19.050	Brook 3/1½ hp 400/440/3/50. Frame C213. Speed 1500-750.
19.051	L.D.C. 3/1½ hp 400/440/3/50. Frame C184. Speed 3000-1500.
19.052	Brook 3/1½ hp 440/3/60. Frame C215. Speed 1800-900.
19.053	Brook 3/1½ hp 550/3/60. Frame C213. Speed 1800-900.
19.054	Brook 3/1½ hp 500/550/50. Frame C213. Speed 1500-750.
19.055	L.D.C. 3/1½ hp 500/550/3/50. Frame C184. Speed 3000-1500.
19.056	Brook 5/2½ hp 190/220/3/50. Frame C213. Speed 3000-1500.
19.057	Brook 5/2½ hp 190/220/3/50. Frame C215. Speed 1500-750.
19.058	L.D.C. 5/2½ hp 190/220/3/60. Frame C213. Speed 3600-1800.
19.059	Brook 5/2½ hp 190/220/3/60. Frame C215. Speed 1800-900.
19.060	Brook 5/2½ hp 220/50. Frame C215. Speed 1500-750.
19.061	L.D.C. 5/2½ hp 220/3/50. Frame C213. Speed 3000-1500.
19.062	Brook 5/2½ hp 220/3/60. Frame C254. Speed 1800-900.
19.063	Brook 5/2½ hp 380/3/50. Frame C215. Speed 1500-750.
19.064	L.D.C. 5/2½ hp 380/3/50. Frame C213. Speed 3000-1500.
19.065	L.D.C. 5/2½ hp 380/3/50. Frame C213. Speed 3000-1500.
19.066	L.D.C. 5/2½ hp 400/440/3/50. Frame C213. Speed 3000-1500.
19.067	Brook 5/2½ hp 400/440/3/50. Frame C215. Speed 1500-750.
19.068	Brook 5/2½ hp 440/3/60. Frame 254. Speed 1800-900.
19.069	Brook 5/2½ hp 500/550/50. Frame C215. Speed 1500-750.
19.070	Brook 5/2½ hp 500/550/3/50. Speed 3000-1500.
19.071	Brook 5/2½ hp 500/550/3/50. Frame C184. Speed 3000-1500.
19.072	Brook 5/2½ hp 550/3/60. Frame 254. Speed 1800-900.

Section 19 continued

Part Ref.	Description
19.073	L.D.C. 8/4 hp 190/220/3/50. Frame C254. Speed 1500-750.
19.074	Brook 8/4 hp 190/220/3/60. Frame C254. Speed 1800-900.
19.075	Brook 8/4 hp 220/50. Frame C254. Speed 1500-750.
19.076	Brook 8/4 hp 220/3/60. Frame 284. Speed 1800-900.
19.077	Brook 8/4 hp 380/50. Frame C254. Speed 1500-750.
19.078	Brook 8/4 hp 440/50. Frame. 254C. Speed 1500-750.
19.079	Brook 8/4 hp 440/3/60. Frame 284. Speed 1800-900.
19.080	Newman 8/4 hp 550/3/60. Frame 284. Speed 1800-900.
19.081	Brook 8/4 hp 500/550/3/50. Frame 254. Speed 1500-750.
19.082	A.E.I. 8/4 hp 220/440/1/60. BC.3014.
19.165	A.E.I. 1 hp 200/240/380/440. BK2410c. Speed 1400-1730.
19.166	A.E.I. 2/1 hp 380/420/3/50/60. Frame KNX.C164.

Section 20 Nuts

Part Ref.	Description
20.609	10 x 24 T.P.I. Deep Nut.
20.610	¼ U.N.C. Deep Nut.
20.611	⅜ U.N.C. Deep Nut.
20.612	½ U.N.C. Deep Nut.
20.613	¾ U.N.C. Deep Nut.
20.614	1 U.N.C. Deep Nut.
20.615	1 ¼ U.N.C. Deep Nut.
20.616	1 ½ U.N.C. Deep Nut.
20.617	1 ¾ U.N.C. Deep Nut.
20.618	10 x 32 T.P.I. Std.Nut.
20.619	¼ U.N.F. Std.Nut.
20.620	½ U.N.C. Std.Nut.
20.621	¾ U.N.C. Std.Nut.
20.622	1 U.N.C. Std.Nut.
20.623	1 ¼ U.N.C. Std.Nut.
20.624	1 ½ U.N.C. Std.Nut.
20.625	1 ¾ U.N.C. Std.Nut.
20.626	2 U.N.C. Std.Nut.
20.627	¼ U.N.C. Std.Nut.
20.628	½ U.N.F. Std.Nut.
20.629	¾ U.N.F. Std.Nut.
20.630	1 U.N.F. Std.Nut.
20.631	1 ¼ U.N.F. Std.Nut.
20.632	10 x 24 T.P.I. Std.Nut.
20.633	¼ U.N.F. Std.Nut.
20.634	½ U.N.F. Std.Nut.
20.635	¾ U.N.C. Thin Nut.
20.636	1 U.N.C. Thin Nut.
20.637	1 ¼ U.N.C. Thin Nut.
20.638	1 ½ U.N.C. Thin Nut.
20.639	1 ¾ U.N.C. Thin Nut.
20.640	2 U.N.C. Thin Nut.
20.641	¼ U.N.C. Thin Nut.
20.642	½ U.N.C. Thin Nut.
20.643	¾ U.N.F. Std.Nut.
20.644	1 U.N.F. Thin Nut.
20.645	10 x 24 T.P.I. Thin Nut.

Section 20 continued

Part Ref.	Description
20.646	10 x 32 T.P.I. Thin Nut.
20.647	¼ U.N.F. Thin Nut.
20.648	⅜ U.N.C. Thin Nut.
20.649	½ U.N.F. Thin Nut.
20.650	¾ U.N.F. Thin Nut.
20.651	1 U.N.F. Thin Nut.
20.652	1 ¼ U.N.F. Thin Nut.
20.653	1 ½ U.N.F. Thin Nut.

Section 21 Lock Nuts

Part Ref.	Description
21.648	¼ U.N.F. Std. Lock Nut.
21.649	⅜ U.N.F. Std. Lock Nut.
21.650	½ U.N.F. Std. Lock Nut.
21.651	¾ U.N.F. Std. Lock Nut.
21.652	1 U.N.F. Std. Lock Nut.
21.653	1 ¼ U.N.F. Std. Lock Nut.
21.654	1 ½ U.N.F. Std. Lock Nut. (Nyloc).
21.655	¼ U.N.F. Std. Lock Nut. (Nyloc).
21.656	½ U.N.F. Std Lock Nut. (Simmonds Nyloc NP/D 286).
21.657	¼ U.N.F. Thin Nut 'T'.
21.658	½ U.N.C. Std. Lock Nut.
21.659	¾ U.N.C. Std. Lock Nut. (Simmonds Aero).
21.660	1 U.N.C. Std. Lock Nut. (Simmonds Aero).
21.661	1 ¼ U.N.C. Std. Lock Nut. (Nyloc).
21.662	1 ½ U.N.C. Std. Lock Nut. (Nyloc NT/N1166).
21.663	¼ U.N.F. Thin Nut 'T'.
21.664	½ U.N.C. Std. Lock Nut.
21.665	¾ U.N.C. Std. Lock Nut.
21.666	1 U.N.C. Std. Lock Nut.
21.667	1 ¼ U.N.C. Std. Lock Nut. ('T' NT/N282).
21.670	½ U.N.F. Thin Nut 'T'.
21.671	¾ U.N.F. Thin Nut 'T'.
21.672	1 U.N.F. Thin Nut 'T' (Simmonds type NT/D 1146).
21.673	1 ½ U.N.F. Thin Nut 'T' (Simmonds type NT/D166).
21.674	¾ U.N.F. Thin Nut 'T'.
21.675	1 U.N.F. Thin Nut 'T' (Simmonds type NT).
21.676	¼ U.N.F. Thin Nut 'T'.
21.677	½ U.N.C. Thin Nut 'T'.
21.678	¾ U.N.C. Thin Nut 'T' (Simmonds type NT/N106).
21.680	1 U.N.C. Thin Nut 'T'. (Philidas J.U.C.J).
21.682	1 ¼ U.N.C. Thin Nut 'T'. (Simmonds NT/N126).
21.683	1 ½ U.N.C. Thin Nut 'T'. (Simmonds NT/N166).
21.684	¾ U.N.C. Thin Nut 'T'. (Simmonds NT/N166).
21.685	1 U.N.C. Thin Nut 'T'. (Simmonds NT/N206).
21.686	¼ U.N.C. Thin Nut 'T'.
21.687	½ U.N.F. Lock Nut. (Philidas c/w cap).

65213
65214

Section 22
Nuts Miscellaneous

Part Ref.	Description
22.146	1/4 B.S.F. Nyloc (Simmonds Type 'T').
22.634	3 B.A. Std. Nut.
22.656	5/8 U.N.F. Philidas c/w plastic cap QUFP/1.
22.663	1/2 U.N.C. Wedglok.
22.668	3/8 U.N.C. Nyloc.
22.681	5/16 U.N.C. Hex Slotted nut.
22.687	Spire Clip Nut. (Type SNU. 0530).
22.688	Vislok Nut. (Type Pat. 1319).
22.689	1/4 B.S.W. Stiff Nut.
22.690	2 B.A. Thin Nut.
22.691	3/8 B.S.F. Nut (Thin).

Section 23
Oilers

Part Ref.	Description
23.124	1/4 Dia. Springwell oil cup.
23.826	1/4 B.S.F. Grease Nipple.
23.827	1/4 Dia. Garland diaphragm oiler.
23.828	5/16 Dia. Winkley oiler.
23.830	3/8 Dia. Winkley oiler.
23.831	1/4 Dia. Bennet oiler.

Section 24
Mills Pins

Part Ref.	Description
24.491	1/16 Dia. x 3/16 in. long G.P.1.
24.492	1/16 Dia. x 1/4 in. long G.P.1.
24.493	1/16 Dia. x 5/16 in. long G.P.1.
24.494	1/16 Dia. x 3/8 in. long G.P.1.
24.495	1/16 Dia. x 7/16 in. long G.P.1.
24.496	1/16 Dia. x 1/2 in. long G.P.1.
24.497	1/16 Dia. x 9/16 in. long G.P.1.
24.498	1/16 Dia. x 5/8 in. long G.P.1.
24.499	1/16 Dia. x 11/16 in. long G.P.1.
24.500	1/16 Dia. x 3/4 in. long G.P.1.
24.501	1/16 Dia. x 13/16 in. long G.P.1.
24.502	1/16 Dia. x 7/8 in. long G.P.1.
24.503	1/16 Dia. x 15/16 in. long G.P.1.
24.504	1/16 Dia. x 1 in. long G.P.1.
24.505	3/32 Dia. x 5/16 in. long G.P.1.
24.506	3/32 Dia. x 3/8 in. long G.P.1.
24.507	3/32 Dia. x 7/16 in. long G.P.1.
24.508	3/32 Dia. x 1/2 in. long G.P.1.
24.509	3/32 Dia. x 9/16 in. long G.P.1.
24.510	3/32 Dia. x 5/8 in. long G.P.1.
24.511	3/32 Dia. x 11/16 in. long G.P.1.
24.512	3/32 Dia. x 3/4 in. long G.P.1.
24.513	3/32 Dia. x 13/16 in. long G.P.1.
24.514	3/32 Dia. x 7/8 in. long G.P.1.
24.515	3/32 Dia. x 15/16 in. long G.P.1.
24.516	3/32 Dia. x 1 in. long G.P.1.
24.517	3/32 Dia. x 1 1/8 in. long G.P.1.
24.518	1/8 Dia. x 3/8 in. long G.P.1.
24.519	1/8 Dia. x 7/16 in. long G.P.1.
24.520	1/8 Dia. x 1/2 in. long G.P.1.
24.521	1/8 Dia. x 3/4 in. long G.P.1.
24.522	1/8 Dia. x 13/16 in. long G.P.1.
24.523	1/8 Dia. x 1 in. long G.P.3.
24.524	1/8 Dia. x 1 1/2 in. long G.P.2.
24.525	1/8 Dia. x 9/16 in. long G.P.3.
24.526	1/8 Dia. x 5/8 in. long G.P.3.
24.527	1/8 Dia. x 3/4 in. long G.P.4.
24.528	1/8 Dia. x 7/8 in. long G.P.4.
24.529	1/8 Dia. x 1 1/2 in. long G.P.3.
24.530	5/32 Dia. x 5/16 in. long G.P.3.
24.531	5/32 Dia. x 3/8 in. long G.P.3.
24.532	5/32 Dia. x 1/2 in. long G.P.3.
24.533	5/32 Dia. x 3/4 in. long G.P.3.
24.534	5/32 Dia. x 1 in. long G.P.3.

Section 24 continued

Part Ref.	Description
24.535	5/32 Dia. x 1 1/4 in. long G.P.3.
24.536	3/16 Dia. x 1/2 in. long G.P.1.
24.537	3/16 Dia. x 1 in. long G.P.1.
24.538	3/16 Dia. x 1 1/8 in. long G.P.1.
24.539	3/16 Dia. x 1/2 in. long G.P.3.
24.540	3/16 Dia. x 9/16 in. long G.P.3.
24.541	3/16 Dia. x 5/8 in. long G.P.3.
24.542	3/16 Dia. x 3/4 in. long G.P.3.
24.543	3/16 Dia. x 7/8 in. long G.P.3.
24.544	3/16 Dia. x 1 in. long G.P.3.
24.545	3/16 Dia. x 1 1/4 in. long G.P.3.
24.546	3/16 Dia. x 1 1/2 in. long G.P.3.
24.547	3/16 Dia. x 5/8 in. long G.P.4.
24.548	3/16 Dia. x 1 1/16 in. long G.P.2.
24.549	3/16 Dia. x 1 3/4 in. long G.P.3.
24.550	3/16 Dia. x 3/8 in. long G.P.3.
24.551	1/4 Dia. x 1/2 in. long G.P.2.
24.552	1/4 Dia. x 5/8 in. long G.P.2.
24.553	1/4 Dia. x 1 in. long G.P.2.
24.554	1/4 Dia. x 1 1/8 in. long G.P.2.
24.555	1/4 Dia. x 1 1/2 in. long G.P.2.
24.556	1/4 Dia. x 1 3/4 in. long G.P.2.
24.557	1/4 Dia. x 1 1/4 in. long G.P.3.
24.558	1/4 Dia. x 3/8 in. long G.P.3.
24.559	1/4 Dia. x 1 1/8 in. long G.P.3.
24.560	1/4 Dia. x 3/4 in. long G.P.4.
24.561	3/8 Dia. x 9/16 in. long G.P.1.
24.562	3/8 Dia. x 5/8 in. long G.P.1.
24.563	1/4 Dia. x 1 1/4 in. long G.P.3.
24.564	1/8 Dia. x 1 1/16 in. long G.P.1.
24.565	5/16 Dia. x 1 in. long G.P.2.
24.566	3/8 Dia. x 7/8 in. long G.P.1.
24.567	3/8 Dia. x 1 5/16 in. long G.P.1.
24.568	3/8 Dia. x 1 in. long G.P.1.
24.569	5/16 Dia. x 5/8 in. long G.P.3.
24.570	5/16 Dia. x 3/4 in. long G.P.3.
24.571	5/16 Dia. x 7/8 in. long G.P.3.
24.572	5/16 Dia. x 1 in. long G.P.3.
24.573	5/16 Dia. x 1 1/4 in. long G.P.3.
24.574	5/16 Dia. x 1 1/2 in. long G.P.3.
24.575	5/16 Dia. x 1 3/4 in. long G.P.3.
24.576	5/16 Dia. x 2 1/2 in. long G.P.3.
24.577	5/16 Dia. x 1 in. long G.P.4.
24.578	5/16 Dia. x 1 1/4 in. long G.P.4.
24.579	1/8 Dia. x 5/16 in. long G.P.3.
24.580	3/8 Dia. x 3/4 in. long G.P.1.
24.581	3/8 Dia. x 1 1/8 in. long G.P.1.
24.582	1/8 Dia. x 1 1/4 in. long G.P.1.
24.583	1/8 Dia. x 1 3/8 in. long G.P.1.
24.584	3/8 Dia. x 5/8 in. long G.P.3.
24.585	3/8 Dia. x 3/4 in. long G.P.3.
24.586	3/8 Dia. x 7/8 in. long G.P.3.
24.587	3/8 Dia. x 1 in. long G.P.3.
24.588	3/8 Dia. x 1 1/4 in. long G.P.3.
24.589	3/8 Dia. x 1 1/2 in. long G.P.3.
24.590	3/8 Dia. x 1 3/4 in. long G.P.3.
24.591	3/8 Dia. x 1 in. long G.P.4.
24.592	3/8 Dia. x 1 1/2 in. long G.P.4.
24.593	1/8 Dia. x 1 1/2 in. long G.P.1.
24.594	5/32 Dia. x 7/16 in. long G.P.1.
24.595	3/8 Dia. x 1 1/2 in. long G.P.2.
24.596	5/32 Dia. x 1/2 in. long G.P.1.
24.597	5/32 Dia. x 9/16 in. long G.P.1.
24.598	5/32 Dia. x 5/8 in. long G.P.1.
24.599	5/32 Dia. x 1 1/16 in. long G.P.1.
24.600	5/32 Dia. x 3/4 in. long G.P.1.
24.601	5/32 Dia. x 13/16 in. long G.P.1.
24.602	5/32 Dia. x 7/8 in. long G.P.1.
24.603	5/32 Dia. x 1 5/16 in. long G.P.1.
24.604	5/32 Dia. x 1 in. long G.P.1.
24.605	5/32 Dia. x 1 1/8 in. long G.P.1.
24.606	5/32 Dia. x 1 1/4 in. long G.P.1.
24.607	5/32 Dia. x 1 3/8 in. long G.P.1.
24.608	5/32 Dia. x 1 1/2 in. long G.P.1.
24.609	5/32 Dia. x 1 5/8 in. long G.P.1.
24.610	5/32 Dia. x 1 3/4 in. long G.P.1.
24.611	5/32 Dia. x 1 7/8 in. long G.P.1.

Section 24 continued

Part Ref.	Description
24.612	5/32 Dia. x 2 in. long G.P.1.
24.613	3/16 Dia. x 7/16 in. long G.P.1.
24.614	3/16 Dia. x 9/16 in. long G.P.1.
24.615	3/16 Dia. x 5/8 in. long G.P.1.
24.616	3/16 Dia. x 1 1/16 in. long G.P.1.
24.617	3/16 Dia. x 3/4 in. long G.P.1.
24.618	3/16 Dia. x 13/16 in. long G.P.1.
24.619	3/16 Dia. x 7/8 in. long G.P.1.
24.620	3/16 Dia. x 1 5/16 in. long G.P.1.
24.621	3/16 Dia. x 1 1/4 in. long G.P.1.
24.622	3/16 Dia. x 1 3/8 in. long G.P.1.
24.623	3/16 Dia. x 1 1/2 in. long G.P.1.
24.624	3/16 Dia. x 1 5/8 in. long G.P.1.
24.625	3/16 Dia. x 1 3/4 in. long G.P.1.
24.626	3/16 Dia. x 1 7/8 in. long G.P.1.
24.627	3/16 Dia. x 2 in. long G.P.1.
24.628	3/16 Dia. x 2 1/4 in. long G.P.1.
24.629	3/16 Dia. x 2 1/2 in. long G.P.1.
24.630	3/16 Dia. x 2 3/4 in. long G.P.1.
24.631	3/16 Dia. x 3 in. long G.P.1.
24.632	7/32 Dia. x 7/16 in. long G.P.1.
24.633	7/32 Dia. x 1/2 in. long G.P.1.
24.634	7/32 Dia. x 9/16 in. long G.P.1.
24.635	7/32 Dia. x 5/8 in. long G.P.1.
24.636	7/32 Dia. x 1 1/16 in. long G.P.1.
24.637	7/32 Dia. x 3/4 in. long G.P.1.
24.638	7/32 Dia. x 13/16 in. long G.P.1.
24.639	7/32 Dia. x 7/8 in. long G.P.1.
24.640	7/32 Dia. x 1 5/16 in. long G.P.1.
24.641	7/32 Dia. x 1 in. long G.P.1.
24.642	7/32 Dia. x 1 1/8 in. long G.P.1.
24.643	7/32 Dia. x 1 1/4 in. long G.P.1.
24.644	7/32 Dia. x 1 3/8 in. long G.P.1.
24.645	7/32 Dia. x 1 1/2 in. long G.P.1.
24.646	7/32 Dia. x 1 5/8 in. long G.P.1.
24.647	7/32 Dia. x 1 3/4 in. long G.P.1.
24.648	7/32 Dia. x 1 7/8 in. long G.P.1.
24.649	7/32 Dia. x 2 in. long G.P.1.
24.650	7/32 Dia. x 2 1/4 in. long G.P.1.
24.651	7/32 Dia. x 2 1/2 in. long G.P.1.
24.652	7/32 Dia. x 2 3/4 in. long G.P.1.
24.653	7/32 Dia. x 3 in. long G.P.1.
24.654	1/4 Dia. x 7/16 in. long G.P.1.
24.655	1/4 Dia. x 1/2 in. long G.P.1.
24.656	1/4 Dia. x 9/16 in. long G.P.1.
24.657	1/4 Dia. x 5/8 in. long G.P.1.
24.658	1/4 Dia. x 1 1/16 in. long G.P.1.
24.659	1/4 Dia. x 3/4 in. long G.P.1.
24.660	1/4 Dia. x 13/16 in. long G.P.1.
24.661	1/4 Dia. x 7/8 in. long G.P.1.
24.662	1/4 Dia. x 1 5/16 in. long G.P.1.
24.663	1/4 Dia. x 1 in. long G.P.1.
24.664	1/4 Dia. x 1 1/8 in. long G.P.1.
24.665	1/4 Dia. x 1 1/4 in. long G.P.1.
24.666	1/4 Dia. x 1 3/8 in. long G.P.1.
24.667	1/4 Dia. x 1 1/2 in. long G.P.1.
24.668	1/4 Dia. x 1 5/8 in. long G.P.1.
24.669	1/4 Dia. x 1 3/4 in. long G.P.1.
24.670	1/4 Dia. x 1 7/8 in. long G.P.1.
24.671	1/4 Dia. x 2 in. long G.P.1.
24.672	1/4 Dia. x 2 1/4 in. long G.P.1.
24.673	1/4 Dia. x 2 1/2 in. long G.P.1.
24.674	1/4 Dia. x 2 3/4 in. long G.P.1.
24.675	1/4 Dia. x 3 in. long G.P.1.
24.676	1/4 Dia. x 3 1/4 in. long G.P.1.
24.677	1/4 Dia. x 3 1/2 in. long G.P.1.
24.678	1/4 Dia. x 3 3/4 in. long G.P.1.
24.679	1/4 Dia. x 4 in. long G.P.1.
24.680	9/32 Dia. x 1/2 in. long G.P.1.
24.681	9/32 Dia. x 9/16 in. long G.P.1.
24.682	9/32 Dia. x 5/8 in. long G.P.1.
24.683	9/32 Dia. x 1 1/16 in. long G.P.1.
24.684	9/32 Dia. x 3/4 in. long G.P.1.
24.685	9/32 Dia. x 13/16 in. long G.P.1.
24.686	9/32 Dia. x 7/8 in. long G.P.1.
24.687	9/32 Dia. x 1 5/16 in. long G.P.1.
24.688	9/32 Dia. x 1 in. long G.P.1.

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Section 24 continued

Table with Part Ref. and dimensions for items 24.140 to 24.214. Includes entries like '24.140 9/32 Dia. x 1 3/4 in. long G.P.3.' and '24.214 3/8 Dia. x 3 1/4 in. long G.P.3.'

Section 24 continued

Table with Part Ref. and dimensions for items 24.215 to 24.292. Includes entries like '24.215 3/8 Dia. x 3 1/2 in. long G.P.3.' and '24.292 3/16 Dia. x 1 1/4 in. long G.P.4.'

Section 24 continued

Table with Part Ref. and dimensions for items 24.293 to 24.370. Includes entries like '24.293 3/16 Dia. x 1 1/8 in. long G.P.4.' and '24.370 9/32 Dia. x 3 1/4 in. long G.P.4.'

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652/4

Section 24 continued

Part Ref.	
24.371	$\frac{9}{32}$ Dia. x $3\frac{1}{2}$ in. long G.P.4.
24.372	$\frac{9}{32}$ Dia. x $3\frac{3}{4}$ in. long G.P.4.
24.373	$\frac{9}{32}$ Dia. x 4 in. long G.P.4.
24.374	$\frac{9}{32}$ Dia. x $4\frac{1}{4}$ in. long G.P.4.
24.375	$\frac{9}{32}$ Dia. x $4\frac{1}{2}$ in. long G.P.4.
24.376	$\frac{9}{32}$ Dia. x $4\frac{3}{4}$ in. long G.P.4.
24.377	$\frac{9}{32}$ Dia. x 5 in. long G.P.4.
24.378	$\frac{5}{16}$ Dia. x $1\frac{11}{16}$ in. long G.P.4.
24.379	$\frac{5}{16}$ Dia. x $\frac{3}{4}$ in. long G.P.4.
24.380	$\frac{5}{16}$ Dia. x $1\frac{3}{16}$ in. long G.P.4.
24.381	$\frac{5}{16}$ Dia. x $\frac{7}{8}$ in. long G.P.4.
24.382	$\frac{5}{16}$ Dia. x $1\frac{5}{16}$ in. long G.P.4.
24.383	$\frac{5}{16}$ Dia. x $1\frac{1}{8}$ in. long G.P.4.
24.384	$\frac{5}{16}$ Dia. x $1\frac{1}{8}$ in. long G.P.4.
24.385	$\frac{5}{16}$ Dia. x $1\frac{1}{2}$ in. long G.P.4.
24.386	$\frac{5}{16}$ Dia. x $1\frac{5}{8}$ in. long G.P.4.
24.387	$\frac{5}{16}$ Dia. x $1\frac{3}{4}$ in. long G.P.4.
24.388	$\frac{5}{16}$ Dia. x $1\frac{7}{8}$ in. long G.P.4.
24.389	$\frac{5}{16}$ Dia. x 2 in. long G.P.4.
24.390	$\frac{5}{16}$ Dia. x $2\frac{1}{4}$ in. long G.P.4.
24.391	$\frac{5}{16}$ Dia. x $2\frac{1}{2}$ in. long G.P.4.
24.392	$\frac{5}{16}$ Dia. x $2\frac{3}{4}$ in. long G.P.4.
24.393	$\frac{5}{16}$ Dia. x 3 in. long G.P.4.
24.394	$\frac{5}{16}$ Dia. x $3\frac{1}{4}$ in. long G.P.4.
24.395	$\frac{5}{16}$ Dia. x $3\frac{1}{2}$ in. long G.P.4.
24.396	$\frac{5}{16}$ Dia. x $3\frac{3}{4}$ in. long G.P.4.
24.397	$\frac{5}{16}$ Dia. x 4 in. long G.P.4.
24.398	$\frac{5}{16}$ Dia. x $4\frac{1}{4}$ in. long G.P.4.
24.399	$\frac{5}{16}$ Dia. x $4\frac{1}{2}$ in. long G.P.4.
24.400	$\frac{5}{16}$ Dia. x $4\frac{3}{4}$ in. long G.P.4.
24.401	$\frac{5}{16}$ Dia. x 5 in. long G.P.4.
24.402	$\frac{5}{16}$ Dia. x $5\frac{1}{2}$ in. long G.P.4.
24.403	$\frac{5}{16}$ Dia. x 6 in. long G.P.4.
24.404	$\frac{5}{16}$ Dia. x $6\frac{1}{2}$ in. long G.P.4.
24.405	$\frac{5}{16}$ Dia. x 7 in. long G.P.4.
24.406	$\frac{11}{32}$ Dia. x $1\frac{11}{16}$ in. long G.P.4.
24.407	$\frac{11}{32}$ Dia. x $\frac{3}{4}$ in. long G.P.4.
24.408	$\frac{11}{32}$ Dia. x $1\frac{3}{16}$ in. long G.P.4.
24.409	$\frac{11}{32}$ Dia. x $\frac{7}{8}$ in. long G.P.4.
24.410	$\frac{11}{32}$ Dia. x $1\frac{5}{16}$ in. long G.P.4.
24.411	$\frac{11}{32}$ Dia. x 1 in. long G.P.4.
24.412	$\frac{11}{32}$ Dia. x $1\frac{1}{8}$ in. long G.P.4.
24.413	$\frac{11}{32}$ Dia. x $1\frac{1}{4}$ in. long G.P.4.
24.414	$\frac{11}{32}$ Dia. x $1\frac{3}{8}$ in. long G.P.4.
24.415	$\frac{11}{32}$ Dia. x $1\frac{1}{2}$ in. long G.P.4.
24.416	$\frac{11}{32}$ Dia. x $1\frac{5}{8}$ in. long G.P.4.
24.417	$\frac{11}{32}$ Dia. x $1\frac{3}{4}$ in. long G.P.4.
24.418	$\frac{11}{32}$ Dia. x $1\frac{7}{8}$ in. long G.P.4.
24.419	$\frac{11}{32}$ Dia. x 2 in. long G.P.4.
24.420	$\frac{11}{32}$ Dia. x $2\frac{1}{4}$ in. long G.P.4.
24.421	$\frac{11}{32}$ Dia. x $2\frac{1}{2}$ in. long G.P.4.
24.422	$\frac{11}{32}$ Dia. x $2\frac{3}{4}$ in. long G.P.4.
24.423	$\frac{11}{32}$ Dia. x 3 in. long G.P.4.
24.424	$\frac{11}{32}$ Dia. x $3\frac{1}{4}$ in. long G.P.4.
24.425	$\frac{11}{32}$ Dia. x $3\frac{1}{2}$ in. long G.P.4.
24.426	$\frac{11}{32}$ Dia. x $3\frac{3}{4}$ in. long G.P.4.
24.427	$\frac{11}{32}$ Dia. x 4 in. long G.P.4.
24.428	$\frac{11}{32}$ Dia. x $4\frac{1}{4}$ in. long G.P.4.
24.429	$\frac{11}{32}$ Dia. x $4\frac{1}{2}$ in. long G.P.4.
24.430	$\frac{11}{32}$ Dia. x $4\frac{3}{4}$ in. long G.P.4.
24.431	$\frac{11}{32}$ Dia. x 5 in. long G.P.4.
24.432	$\frac{11}{32}$ Dia. x $5\frac{1}{2}$ in. long G.P.4.
24.433	$\frac{11}{32}$ Dia. x 6 in. long G.P.4.
24.434	$\frac{11}{32}$ Dia. x $6\frac{1}{2}$ in. long G.P.4.
24.435	$\frac{11}{32}$ Dia. x 7 in. long G.P.4.
24.436	$\frac{3}{8}$ Dia. x $1\frac{13}{16}$ in. long G.P.4.
24.437	$\frac{3}{8}$ Dia. x $\frac{7}{8}$ in. long G.P.4.
24.438	$\frac{3}{8}$ Dia. x $1\frac{5}{16}$ in. long G.P.4.
24.439	$\frac{3}{8}$ Dia. x $1\frac{1}{8}$ in. long G.P.4.
24.440	$\frac{3}{8}$ Dia. x $1\frac{1}{4}$ in. long G.P.4.
24.441	$\frac{3}{8}$ Dia. x $1\frac{3}{8}$ in. long G.P.4.
24.442	$\frac{3}{8}$ Dia. x $1\frac{1}{2}$ in. long G.P.4.
24.443	$\frac{3}{8}$ Dia. x $1\frac{3}{4}$ in. long G.P.4.
24.444	$\frac{3}{8}$ Dia. x $1\frac{7}{8}$ in. long G.P.4.

Section 24 continued

Part Ref.	
24.445	$\frac{3}{8}$ Dia. x 2 in. long G.P.4.
24.446	$\frac{3}{8}$ Dia. x $2\frac{1}{4}$ in. long G.P.4.
24.447	$\frac{3}{8}$ Dia. x $2\frac{1}{2}$ in. long G.P.4.
24.448	$\frac{3}{8}$ Dia. x $2\frac{3}{4}$ in. long G.P.4.
24.449	$\frac{3}{8}$ Dia. x 3 in. long G.P.4.
24.450	$\frac{3}{8}$ Dia. x $3\frac{1}{4}$ in. long G.P.4.
24.451	$\frac{3}{8}$ Dia. x $3\frac{1}{2}$ in. long G.P.4.
24.452	$\frac{3}{8}$ Dia. x $3\frac{3}{4}$ in. long G.P.4.
24.453	$\frac{3}{8}$ Dia. x 4 in. long G.P.4.
24.454	$\frac{3}{8}$ Dia. x $4\frac{1}{4}$ in. long G.P.4.
24.455	$\frac{3}{8}$ Dia. x $4\frac{1}{2}$ in. long G.P.4.
24.456	$\frac{3}{8}$ Dia. x $4\frac{3}{4}$ in. long G.P.4.
24.457	$\frac{3}{8}$ Dia. x 5 in. long G.P.4.
24.458	$\frac{3}{8}$ Dia. x $5\frac{1}{2}$ in. long G.P.4.
24.459	$\frac{3}{8}$ Dia. x 6 in. long G.P.4.
24.460	$\frac{3}{8}$ Dia. x $6\frac{1}{2}$ in. long G.P.4.
24.461	$\frac{3}{8}$ Dia. x 7 in. long G.P.4.

Section 25

Pins Miscellaneous

Part Ref.	
25.042	$\frac{3}{32}$ Dia. x $\frac{3}{4}$ in. long Split Pin.
25.561	$\frac{1}{4}$ Dia. x $\frac{3}{4}$ in. long G.P.5.
25.562	$\frac{1}{4}$ Dia. x $1\frac{5}{8}$ in. long G.P.5.
25.566	$\frac{5}{16}$ Dia. x $\frac{1}{4}$ in. long G.P.3.
25.567	$\frac{5}{16}$ Dia. x $\frac{3}{8}$ in. long G.P.3.
25.568	$\frac{5}{16}$ Dia. x $\frac{1}{2}$ in. long G.P.3.
25.581	$\frac{3}{8}$ Dia. x $\frac{1}{4}$ in. long G.P.3.
25.582	$\frac{3}{8}$ Dia. x $\frac{3}{8}$ in. long G.P.3.
25.583	$\frac{3}{8}$ Dia. x $\frac{1}{2}$ in. long G.P.3.
25.584	$\frac{3}{8}$ Dia. x $\frac{1}{4}$ in. long G.P.3.
25.585	$\frac{3}{32}$ Dia. x 2 in. long Split Pin.
25.586	$\frac{3}{32}$ Dia. x $2\frac{1}{4}$ in. long Split Pin.

Section 26

Oil Rings

Part Ref.	
26.034	3 in. Dia. x .210 Thk. Pioneer. PO/33730021.
26.841	$\frac{1}{8}$ Dia. x 0.70 Thk. Pioneer. PO/02501207.
26.842	$\frac{3}{16}$ Dia. x .070 Thk. Pioneer. PO/03101807.
26.843	$\frac{1}{4}$ Dia. x .070 Thk. Pioneer. PO/03702507.
26.844	$\frac{5}{16}$ Dia. x .070 Thk. Pioneer. PO/04303107.
26.845	$\frac{3}{8}$ Dia. x .070 Thk. Pioneer. PO/05003707.
26.846	$\frac{7}{16}$ Dia. x .070 Thk. Pioneer. PO/05604307.
26.847	$\frac{9}{16}$ Dia. x .103 Thk. Pioneer. PO/07505610.
26.848	$\frac{11}{16}$ Dia. x .103 Thk. Pioneer. PO/08706810.
26.849	$\frac{13}{16}$ Dia. x .103 Thk. Pioneer. PO/10008110.
26.850	$\frac{1}{2}$ Dia. x .103 Thk. Pioneer. PO/06805010.
26.851	1 Dia. x .139 Thk. Pioneer. PO/12510013.
26.852	$1\frac{1}{2}$ Dia. x .139 Thk. Pioneer. PO/17515013.
26.853	$1\frac{3}{8}$ Dia. x .139 Thk. Pioneer. PO/18716213.
26.854	$1\frac{13}{16}$ Dia. x .139 Thk. Pioneer. PO/20618113.
26.855	$\frac{5}{8}$ Dia. x .103 Thk. Pioneer. PO/08106210.
26.856	2 Dia. x .139 Thk. Pioneer. PO/22520013.
26.857	$\frac{3}{4}$ Dia. x .103 Thk. Pioneer. PO/09307510.
26.858	$\frac{7}{8}$ Dia. x .103 Thk. Pioneer. PO/10608710.
26.859	$\frac{1}{2}$ i.d. x $\frac{5}{8}$ o/d Dowty No.2.
26.860	$\frac{15}{16}$ Dia. x .103 Thk. Pioneer. PO/11209310.
26.861	$1\frac{1}{16}$ Dia. x .139 Thk. Pioneer. PO/13110613.
26.862	$1\frac{1}{8}$ Dia. x .139 Thk. Pioneer. PO/13711213.
26.863	$1\frac{3}{16}$ Dia. x .139 Thk. Pioneer. PO/14311813.
26.864	$1\frac{1}{4}$ Dia. x .139 Thk. Pioneer. PO/15012513.
26.865	$1\frac{5}{16}$ Dia. x .139 Thk. Pioneer. PO/15613113.
26.866	$1\frac{3}{8}$ Dia. x .139 Thk. Pioneer. PO/16213713.
26.867	$1\frac{7}{16}$ Dia. x .139 Thk. Pioneer. PO/16814313.
26.868	$1\frac{9}{16}$ Dia. x .139 Thk. Pioneer. PO/18115613.
26.869	$1\frac{11}{16}$ Dia. x .139 Thk. Pioneer. PO/19316813.
26.870	$1\frac{3}{4}$ Dia. x .139 Thk. Pioneer. PO/20017513.
26.871	$1\frac{7}{8}$ Dia. x .139 Thk. Pioneer. PO/21218713.
26.872	$1\frac{15}{16}$ Dia. x .139 Thk. Pioneer. PO/21819313.
26.873	$2\frac{1}{16}$ Dia. x .139 Thk. Pioneer. PO/23120613.
26.874	$2\frac{1}{8}$ Dia. x .139 Thk. Pioneer. PO/23721213.
26.875	$2\frac{3}{16}$ Dia. x .139 Thk. Pioneer. PO/24321813.
26.876	$2\frac{1}{4}$ Dia. x .139 Thk. Pioneer. PO/25022513.
26.877	$2\frac{5}{16}$ Dia. x .139 Thk. Pioneer. PO/25623113.
26.878	$2\frac{3}{8}$ Dia. x .139 Thk. Pioneer. PO/26223713.
26.879	$2\frac{7}{16}$ Dia. x .139 Thk. Pioneer. PO/26824313.
26.880	$2\frac{1}{2}$ Dia. x .139 Thk. Pioneer. PO/27525013.
26.881	$2\frac{9}{16}$ Dia. x .139 Thk. Pioneer. PO/28125613.
26.882	$2\frac{5}{8}$ Dia. x .139 Thk. Pioneer. PO/28726213.
26.883	$2\frac{11}{16}$ Dia. x .139 Thk. Pioneer. PO/29326813.
26.884	$2\frac{3}{4}$ Dia. x .139 Thk. Pioneer. PO/30027513.
26.885	$2\frac{13}{16}$ Dia. x .139 Thk. Pioneer. PO/30628113.
26.886	$2\frac{7}{8}$ Dia. x .139 Thk. Pioneer. PO/31228713.
26.887	$2\frac{15}{16}$ Dia. x .139 Thk. Pioneer. PO/31829313.
26.889	$3\frac{3}{8}$ Dia. x .210 Thk. Pioneer. PO/35031221.
26.890	$3\frac{1}{4}$ Dia. x .210 Thk. Pioneer. PO/36232521.
26.891	$3\frac{3}{8}$ Dia. x .210 Thk. Pioneer. PO/37533721.
26.892	$3\frac{1}{2}$ Dia. x .210 Thk. Pioneer. PO/38735021.
26.893	$3\frac{5}{8}$ Dia. x .210 Thk. Pioneer. PO/40036221.
26.894	$3\frac{3}{4}$ Dia. x .210 Thk. Pioneer. PO/41237521.
26.895	$3\frac{7}{8}$ Dia. x .210 Thk. Pioneer. PO/42538721.
26.896	4 in. Dia. x .210 Thk. Pioneer. PO/43740021.
26.897	$4\frac{1}{8}$ Dia. x .210 Thk. Pioneer. PO/45041221.

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Section 26 continued

Part Ref.		
26.898	4 1/4 Dia.	x .210 Thk. Pioneer. PO/46242521.
26.899	4 3/8 Dia.	x .210 Thk. Pioneer. PO/47543721.
26.900	4 1/2 Dia.	x .210 Thk. Pioneer. PO/48745021.
26.901	4 5/8 Dia.	x .210 Thk. Pioneer. PO/50046221.
26.902	4 3/4 Dia.	x .210 Thk. Pioneer. PO/51247521.
26.903	4 7/8 Dia.	x .210 Thk. Pioneer. PO/52548721.
26.904	5 in. Dia.	x .210 Thk. Pioneer. PO/53750021.
26.905	5 1/8 Dia.	x .210 Thk. Pioneer. PO/55051221.
26.906	5 1/4 Dia.	x .210 Thk. Pioneer. PO/56252521.
26.907	5 3/8 Dia.	x .210 Thk. Pioneer. PO/57553721.
26.908	5 1/2 Dia.	x .210 Thk. Pioneer. PO/58755021.
26.909	5 5/8 Dia.	x .210 Thk. Pioneer. PO/60056221.
26.910	5 3/4 Dia.	x .210 Thk. Pioneer. PO/61257521.
26.911	5 7/8 Dia.	x .210 Thk. Pioneer. PO/62558721.
26.912	6 in. Dia.	x .275 Thk. Pioneer. PO/65060027.
26.913	6 1/8 Dia.	x .275 Thk. Pioneer. PO/66261227.
26.914	6 1/4 Dia.	x .275 Thk. Pioneer. PO/67562527.
26.915	6 3/8 Dia.	x .275 Thk. Pioneer. PO/68763727.
26.916	6 1/2 Dia.	x .275 Thk. Pioneer. PO/70065027.
26.917	6 5/8 Dia.	x .275 Thk. Pioneer. PO/71266227.
26.918	6 3/4 Dia.	x .275 Thk. Pioneer. PO/72567527.
26.919	6 7/8 Dia.	x .275 Thk. Pioneer. PO/73768727.
26.920	7 in. Dia.	x .275 Thk. Pioneer. PO/75070027.
26.921	7 1/8 Dia.	x .275 Thk. Pioneer. PO/76271227.
26.922	7 1/4 Dia.	x .275 Thk. Pioneer. PO/77572527.
26.923	7 3/8 Dia.	x .275 Thk. Pioneer. PO/78773727.
26.924	7 1/2 Dia.	x .275 Thk. Pioneer. PO/80075027.
26.925	7 5/8 Dia.	x .275 Thk. Pioneer. PO/81276227.
26.926	7 3/4 Dia.	x .275 Thk. Pioneer. PO/82577527.
26.927	7 7/8 Dia.	x .275 Thk. Pioneer. PO/83778727.
26.928	8 in. Dia.	x .275 Thk. Pioneer. PO/85080027.
26.929	7 1/16 i.d. x 9 1/16 o.d.	Dowty No.1.
26.930	9 1/16 i.d. x 11 1/16 o.d.	Dowty No.3.
26.931	5/8 i.d. x 3/4 o.d.	Dowty No.4.
26.932	11 1/16 i.d. x 13 1/16 o.d.	Dowty No.5.
26.933	3/4 i.d. x 7/8 o.d.	Dowty No.6.
26.934	13 1/16 i.d. x 15 1/16 o.d.	Dowty No.7.
26.935	7/8 i.d. x 1 o.d.	Dowty No.8.

6521-3
6521-4

Section 26 continued

Part Ref.		
26.936	15 1/16 i.d. x 1 1/16 o.d.	Dowty No.9.
26.937	1 in. i.d. x 1 1/8 o.d.	Dowty No.10.
26.938	1 1/16 i.d. x 1 3/16 o.d.	Dowty No.11.
26.939	1 1/8 i.d. x 1 1/4 o.d.	Dowty No.12.
26.940	1 3/16 i.d. x 1 5/16 o.d.	Dowty No.13.
26.941	1 1/4 i.d. x 1 3/8 o.d.	Dowty No.14.
26.942	1 5/16 i.d. x 1 7/16 o.d.	Dowty No.15.
26.943	1 3/8 i.d. x 1 1/2 o.d.	Dowty No.16.
26.944	1 7/16 i.d. x 1 9/16 o.d.	Dowty No.17.
26.945	1 1/2 i.d. x 1 5/8 o.d.	Dowty No.18.
26.946	1 9/16 i.d. x 1 11/16 o.d.	Dowty No.19.
26.947	1 5/8 i.d. x 1 3/4 o.d.	Dowty No.20.
26.948	1 3/4 i.d. x 1 7/8 o.d.	Dowty No.21.
26.949	1 7/8 i.d. x 2 in. o.d.	Dowty No.22.
26.950	2 in. i.d. x 2 1/8 o.d.	Dowty No.23.
26.951	2 1/8 i.d. x 2 1/4 o.d.	Dowty No.24.
26.952	2 1/4 i.d. x 2 3/8 o.d.	Dowty No.25.
26.953	2 3/8 i.d. x 2 1/2 o.d.	Dowty No.26.
26.954	2 1/2 i.d. x 2 5/8 o.d.	Dowty No.27.
26.955	2 5/8 i.d. x 2 3/4 o.d.	Dowty No.28.
26.956	2 3/4 i.d. x 2 7/8 o.d.	Dowty No.29.
26.957	2 7/8 i.d. x 3 in. o.d.	Dowty No.30.

Section 27

Oil Rings Miscellaneous

Part Ref.	
27.026	Pioneer POS/2504/MP/658
27.027	Pioneer SH/96/332. 1 7/8 i.d.
27.028	1.734 i.d. x .139 Thk. Pioneer. PO/20017513.
27.040	Pioneer POS/2508/MP/658
27.047	Superfect SH/96/45
27.048	Superfect SH/96/34
27.060	1/2 i.d. B4/1115.
27.137	Dowty Mk7 list 4 pp 73c.
27.138	Dowty Mk24 list 5 pp 49c.
27.141	Superfect SH/96/16.
27.192	Dowty Mk.7 list 1 pp 49c.
27.846	.424 i.d. x .070 Thk. Pioneer. PO/06204310.
27.850	.859 i.d. x .139 Thk. Pioneer. PO/11208713.
27.855	Pioneer PO/23720021.
27.856	POS/2507/MP/658.
27.857	2.100 i.d. x .070 Thk. Pioneer. PO/25021221.
27.858	POS/2506/MP/658.
27.859	SH/96/44 Superfect.
27.860	PP73C Dowty.
27.861	5-004/MP/701.
27.862	SH/96/11 Superfect.
27.025	Pioneer POS/505/MH/658
27.148	Dowty list 5 Mk 26 pp 49c.
27.182	Dowty 5 Mk 10 pp 49c.
27.193	Dowty pp 49c/18 list 5.

Section 28
Rivets

Part Ref.	
28.902	3/32 Dia. x 1/2 in. long R.H. Steel.
28.903	1/8 Dia. x 1/4 in. long Copper Round Head.
28.904	3/8 Dia. x 3/4 in. long Copper Hollow.
28.905	1/8 Dia. x 7/16 in. long Copper c/sunk Head.
28.906	5/32 Dia. Copper, c/sunk-Head.
28.907	1/4 Dia. x 7/16 in. long Copper c/sunk Head.
28.908	1/2 Dia. x 1/2 in. long x 3/16 Dia. Hd. Hollow Copper.
28.909	3/8 Dia. x 3/8 in. long c/sunk Steel.
28.910	3/16 Dia. x 3/8 in. long R.H. Steel.
28.911	No.4 x 3/16 Pan Head.
28.912	No.4 x 1/2 Pan Head.
28.913	3/32 Dia. x 5/8 in. long R.H. Steel.

Section 45
Cap Screws – Hex Socket Head
10 x 24 t.p.i.

Part Ref.	
45.200	10 x 24 t.p.i. x ¼ in. long.
45.201	10 x 24 t.p.i. x ⅜ in. long.
45.202	10 x 24 t.p.i. x ½ in. long.
45.203	10 x 24 t.p.i. x ⅝ in. long.
45.204	10 x 24 t.p.i. x ¾ in. long.
45.205	10 x 24 t.p.i. x ⅞ in. long.
45.206	10 x 24 t.p.i. x 1 in. long.
45.207	10 x 24 t.p.i. x 1¼ in. long.
45.208	10 x 24 t.p.i. x 1½ in. long.
45.209	10 x 24 t.p.i. x 1¾ in. long.
45.210	10 x 24 t.p.i. x 2 in. long.

Section 46
Cap Screws – Hex Socket Head
¼ in. U.N.C.

Part Ref.	
46.211	¼ U.N.C. x ⅜ in. long.
46.212	¼ U.N.C. x ½ in. long.
46.213	¼ U.N.C. x ⅝ in. long.
46.214	¼ U.N.C. x ¾ in. long.
46.215	¼ U.N.C. x ⅞ in. long.
46.216	¼ U.N.C. x 1 in. long.
46.217	¼ U.N.C. x 1¼ in. long.
46.218	¼ U.N.C. x 1½ in. long.
46.219	¼ U.N.C. x 1¾ in. long.
46.220	¼ U.N.C. x 2 in. long.
46.221	¼ U.N.C. x 2¼ in. long.
46.222	¼ U.N.C. x 2½ in. long.

Section 47
Cap Screws – Hex Socket Head
⅝ in. U.N.C.

Part Ref.	
47.223	⅝ U.N.C. x ½ in. long.
47.224	⅝ U.N.C. x ⅝ in. long.
47.225	⅝ U.N.C. x ¾ in. long.
47.226	⅝ U.N.C. x ⅞ in. long.
47.227	⅝ U.N.C. x 1 in. long.
47.228	⅝ U.N.C. x 1¼ in. long.
47.229	⅝ U.N.C. x 1½ in. long.
47.230	⅝ U.N.C. x 1¾ in. long.
47.231	⅝ U.N.C. x 2 in. long.
47.232	⅝ U.N.C. x 2¼ in. long.
47.233	⅝ U.N.C. x 2½ in. long.
47.234	⅝ U.N.C. x 3 in. long.

Section 48
Cap Screws – Hex Socket Head
⅜ in. U.N.C.

Part Ref.	
48.236	⅜ U.N.C. x ½ in. long.
48.237	⅜ U.N.C. x ⅝ in. long.
48.238	⅜ U.N.C. x ¾ in. long.
48.239	⅜ U.N.C. x ⅞ in. long.
48.240	⅜ U.N.C. x 1 in. long.
48.241	⅜ U.N.C. x 1¼ in. long.
48.242	⅜ U.N.C. x 1½ in. long.
48.243	⅜ U.N.C. x 1¾ in. long.
48.244	⅜ U.N.C. x 2 in. long.
48.245	⅜ U.N.C. x 2¼ in. long.
48.246	⅜ U.N.C. x 2½ in. long.
48.247	⅜ U.N.C. x 3 in. long.
48.248	⅜ U.N.C. x 3½ in. long.
48.249	⅜ U.N.C. x 4 in. long.

Section 49
Cap Screws – Hex Socket Head
7/16 in. U.N.C.

Part Ref.	
49.250	7/16 U.N.C. x 1 in. long.
49.251	7/16 U.N.C. x 1¼ in. long.
49.252	7/16 U.N.C. x 1½ in. long.
49.253	7/16 U.N.C. x 2 in. long.
49.254	7/16 U.N.C. x 2¼ in. long.
49.255	7/16 U.N.C. x 2½ in. long.
49.256	7/16 U.N.C. x 3 in. long.

Section 50
Cap Screws – Hex Socket Head
½ in. U.N.C.

Part Ref.	
50.257	½ U.N.C. x ¾ in. long.
50.258	½ U.N.C. x 1 in. long.
50.259	½ U.N.C. x 1¼ in. long.
50.260	½ U.N.C. x 1½ in. long.
50.261	½ U.N.C. x 2 in. long.
50.262	½ U.N.C. x 2½ in. long.
50.263	½ U.N.C. x 3 in. long.
50.264	½ U.N.C. x 3½ in. long.
50.265	½ U.N.C. x 4 in. long.
50.266	½ U.N.C. x 4½ in. long.
50.267	½ U.N.C. x 5 in. long.
50.268	½ U.N.C. x 1¾ in. long.
50.269	½ U.N.C. x 2¼ in. long.

Section 51
Cap Screws – Hex Socket Head
5/8 in. U.N.C.

Part Ref.	
51.268	5/8 U.N.C. x 1¼ in. long.
51.269	5/8 U.N.C. x 1½ in. long.
51.270	5/8 U.N.C. x 1¾ in. long.
51.271	5/8 U.N.C. x 2 in. long.
51.272	5/8 U.N.C. x 2½ in. long.
51.273	5/8 U.N.C. x 3 in. long.
51.274	5/8 U.N.C. x 3½ in. long.
51.275	5/8 U.N.C. x 4 in. long.
51.276	5/8 U.N.C. x 4½ in. long.
51.277	5/8 U.N.C. x 5 in. long.
51.278	5/8 U.N.C. x 5½ in. long.
51.279	5/8 U.N.C. x 6 in. long.

Section 52
Cap Screws – Hex Socket Head
¾ in. U.N.C.

Part Ref.	
52.280	¾ U.N.C. x 1½ in. long.
52.281	¾ U.N.C. x 2 in. long.
52.282	¾ U.N.C. x 2½ in. long.
52.283	¾ U.N.C. x 3 in. long.
52.284	¾ U.N.C. x 3½ in. long.
52.285	¾ U.N.C. x 4 in. long.
52.286	¾ U.N.C. x 4½ in. long.
52.287	¾ U.N.C. x 5 in. long.
52.288	¾ U.N.C. x 5½ in. long.
52.289	¾ U.N.C. x 6 in. long.

Section 53
C/Sunk Screws – Hex Socket
Head 10 x 24 t.p.i.

Part Ref.	
53.300	10 x 24 t.p.i. x ¼ in. long.
53.301	10 x 24 t.p.i. x ⅜ in. long.
53.302	10 x 24 t.p.i. x ½ in. long.
53.303	10 x 24 t.p.i. x ⅝ in. long.
53.304	10 x 24 t.p.i. x ¾ in. long.
53.305	10 x 24 t.p.i. x ⅞ in. long.
53.306	10 x 24 t.p.i. x 1 in. long.

Section 54
C/Sunk Screws – Hex Socket
Head ¼ in. U.N.C.

Part Ref.	
54.307	¼ U.N.C. x ⅜ in. long.
54.308	¼ U.N.C. x ½ in. long.
54.309	¼ U.N.C. x ⅝ in. long.
54.310	¼ U.N.C. x ¾ in. long.
54.311	¼ U.N.C. x ⅞ in. long.
54.312	¼ U.N.C. x 1 in. long.
54.313	¼ U.N.C. x 1¼ in. long.
54.314	¼ U.N.C. x 1½ in. long.
54.315	¼ U.N.C. x 1¾ in. long.

Section 55
C/Sunk Screws – Hex Socket
Head ⅝ in. U.N.C.

Part Ref.	
55.316	⅝ U.N.C. x ½ in. long.
55.317	⅝ U.N.C. x ⅝ in. long.
55.318	⅝ U.N.C. x ¾ in. long.
55.319	⅝ U.N.C. x 1 in. long.
55.320	⅝ U.N.C. x 1¼ in. long.
55.321	⅝ U.N.C. x 1½ in. long.

Section 56
C/Sunk Screws – Hex Socket
Head ⅜ in. U.N.C.

Part Ref.	
56.322	⅜ U.N.C. x ½ in. long.
56.323	⅜ U.N.C. x ⅝ in. long.
56.324	⅜ U.N.C. x ¾ in. long.
56.325	⅜ U.N.C. x 1 in. long.
56.326	⅜ U.N.C. x 1½ in. long.
56.327	⅜ U.N.C. x 1¾ in. long.
56.328	⅜ U.N.C. x 2 in. long.

Section 57
C/Sunk Screws – Hex Socket
Head ½ in. U.N.C.

Part Ref.	
57.329	½ U.N.C. x ¾ in. long.
57.330	½ U.N.C. x 1 in. long.
57.331	½ U.N.C. x 1¼ in. long.
57.332	½ U.N.C. x 1½ in. long.
57.333	½ U.N.C. x 1¾ in. long.
57.334	½ U.N.C. x 2 in. long.

Section 58

**Cup Point Screws – Hex Socket
Set 10 x 24 t.p.i.**

Part Ref.	
58.342	10 x 24 t.p.i. x $\frac{3}{16}$ in. long.
58.343	10 x 24 t.p.i. x $\frac{1}{4}$ in. long.
58.344	10 x 24 t.p.i. x $\frac{5}{16}$ in. long.
58.345	10 x 24 t.p.i. x $\frac{3}{8}$ in. long.
58.346	10 x 24 t.p.i. x $\frac{7}{16}$ in. long.
58.347	10 x 24 t.p.i. x $\frac{1}{2}$ in. long.
58.348	10 x 24 t.p.i. x $\frac{5}{8}$ in. long.
58.349	10 x 24 t.p.i. x $\frac{3}{4}$ in. long.

Section 59

**Cup Point Screws – Hex Socket
Set $\frac{1}{4}$ in. U.N.C.**

Part Ref.	
59.350	$\frac{1}{4}$ U.N.C. x $\frac{1}{4}$ in. long.
59.351	$\frac{1}{4}$ U.N.C. x $\frac{5}{16}$ in. long.
59.352	$\frac{1}{4}$ U.N.C. x $\frac{3}{8}$ in. long.
59.353	$\frac{1}{4}$ U.N.C. x $\frac{7}{16}$ in. long.
59.354	$\frac{1}{4}$ U.N.C. x $\frac{1}{2}$ in. long.
59.355	$\frac{1}{4}$ U.N.C. x $\frac{5}{8}$ in. long.
59.356	$\frac{1}{4}$ U.N.C. x $\frac{3}{4}$ in. long.
59.357	$\frac{1}{4}$ U.N.C. x 1 in. long.
59.358	$\frac{1}{4}$ U.N.C. x $1\frac{1}{4}$ in. long.
59.359	$\frac{1}{4}$ U.N.C. x $1\frac{1}{2}$ in. long.

Section 60

**Cup Point Screws – Hex Socket
Set $\frac{5}{16}$ in. U.N.C.**

Part Ref.	
60.360	$\frac{5}{16}$ U.N.C. x $\frac{1}{4}$ in. long.
60.361	$\frac{5}{16}$ U.N.C. x $\frac{5}{16}$ in. long.
60.362	$\frac{5}{16}$ U.N.C. x $\frac{3}{8}$ in. long.
60.363	$\frac{5}{16}$ U.N.C. x $\frac{7}{16}$ in. long.
60.364	$\frac{5}{16}$ U.N.C. x $\frac{1}{2}$ in. long.
60.365	$\frac{5}{16}$ U.N.C. x $\frac{5}{8}$ in. long.
60.366	$\frac{5}{16}$ U.N.C. x $\frac{3}{4}$ in. long.
60.367	$\frac{5}{16}$ U.N.C. x 1 in. long.
60.368	$\frac{5}{16}$ U.N.C. x $1\frac{1}{4}$ in. long.
60.369	$\frac{5}{16}$ U.N.C. x $1\frac{1}{2}$ in. long.

Section 61

**Cup Point Screws – Hex Socket
Set $\frac{3}{8}$ in. U.N.C.**

Part Ref.	
61.370	$\frac{3}{8}$ U.N.C. x $\frac{3}{8}$ in. long.
61.371	$\frac{3}{8}$ U.N.C. x $\frac{1}{2}$ in. long.
61.372	$\frac{3}{8}$ U.N.C. x $\frac{5}{8}$ in. long.
61.373	$\frac{3}{8}$ U.N.C. x $\frac{3}{4}$ in. long.
61.374	$\frac{3}{8}$ U.N.C. x 1 in. long.
61.375	$\frac{3}{8}$ U.N.C. x $1\frac{1}{4}$ in. long.
61.376	$\frac{3}{8}$ U.N.C. x $1\frac{1}{2}$ in. long.
61.377	$\frac{3}{8}$ U.N.C. x $1\frac{3}{4}$ in. long.

Section 62

**Cup Point Screws – Hex Socket
Set $\frac{7}{16}$ in. U.N.C.**

Part Ref.	
62.378	$\frac{7}{16}$ U.N.C. x $\frac{7}{16}$ in. long.
62.379	$\frac{7}{16}$ U.N.C. x $\frac{1}{2}$ in. long.
62.380	$\frac{7}{16}$ U.N.C. x $\frac{5}{8}$ in. long.
62.381	$\frac{7}{16}$ U.N.C. x $\frac{3}{4}$ in. long.
62.382	$\frac{7}{16}$ U.N.C. x 1 in. long.
62.383	$\frac{7}{16}$ U.N.C. x $1\frac{1}{4}$ in. long.

Section 63

**Cup Point Screws – Hex Socket
Set $\frac{1}{2}$ in. U.N.C.**

Part Ref.	
63.384	$\frac{1}{2}$ U.N.C. x $\frac{1}{2}$ in. long.
63.385	$\frac{1}{2}$ U.N.C. x $\frac{5}{8}$ in. long.
63.386	$\frac{1}{2}$ U.N.C. x $\frac{3}{4}$ in. long.
63.387	$\frac{1}{2}$ U.N.C. x 1 in. long.
63.388	$\frac{1}{2}$ U.N.C. x $1\frac{1}{4}$ in. long.
63.389	$\frac{1}{2}$ U.N.C. x $1\frac{1}{2}$ in. long.
63.390	$\frac{1}{2}$ U.N.C. x 2 in. long.

Section 64

**Cup Point Screws – Hex Socket
Set $\frac{5}{8}$ in. U.N.C.**

Part Ref.	
64.391	$\frac{5}{8}$ U.N.C. x $\frac{5}{8}$ in. long.
64.392	$\frac{5}{8}$ U.N.C. x $\frac{3}{4}$ in. long.
64.393	$\frac{5}{8}$ U.N.C. x 1 in. long.
64.394	$\frac{5}{8}$ U.N.C. x $1\frac{1}{2}$ in. long.

Section 65

**Cup Point Screws – Hex Socket
Set $\frac{3}{4}$ in. U.N.C.**

Part Ref.	
65.395	$\frac{3}{4}$ U.N.C. x $\frac{3}{4}$ in. long.
65.396	$\frac{3}{4}$ U.N.C. x 1 in. long.
65.397	$\frac{3}{4}$ U.N.C. x $1\frac{1}{2}$ in. long.

Section 66

**$\frac{1}{2}$ Dog Screws – Hex Socket Set
10 x 24 t.p.i.**

Part Ref.	
66.410	10 x 24 t.p.i. x $\frac{3}{16}$ in. long.
66.411	10 x 24 t.p.i. x $\frac{1}{4}$ in. long.
66.412	10 x 24 t.p.i. x $\frac{5}{16}$ in. long.
66.413	10 x 24 t.p.i. x $\frac{3}{8}$ in. long.
66.414	10 x 24 t.p.i. x $\frac{1}{2}$ in. long.
66.415	10 x 24 t.p.i. x $\frac{5}{8}$ in. long.
66.416	10 x 24 t.p.i. x $\frac{3}{4}$ in. long.

Section 67

**$\frac{1}{2}$ Dog Screws – Hex Socket Set
 $\frac{1}{4}$ in. U.N.C.**

Part Ref.	
67.417	$\frac{1}{4}$ U.N.C. x $\frac{1}{4}$ in. long.
67.418	$\frac{1}{4}$ U.N.C. x $\frac{5}{16}$ in. long.
67.419	$\frac{1}{4}$ U.N.C. x $\frac{3}{8}$ in. long.
67.420	$\frac{1}{4}$ U.N.C. x $\frac{7}{16}$ in. long.
67.421	$\frac{1}{4}$ U.N.C. x $\frac{1}{2}$ in. long.
67.422	$\frac{1}{4}$ U.N.C. x $\frac{9}{16}$ in. long.
67.423	$\frac{1}{4}$ U.N.C. x $\frac{5}{8}$ in. long.
67.424	$\frac{1}{4}$ U.N.C. x $\frac{3}{4}$ in. long.
67.425	$\frac{1}{4}$ U.N.C. x 1 in. long.
67.426	$\frac{1}{4}$ U.N.C. x $1\frac{1}{4}$ in. long.
67.427	$\frac{1}{4}$ U.N.C. x $1\frac{1}{2}$ in. long.

Section 68

**$\frac{1}{2}$ Dog Screws – Hex Socket Set
 $\frac{5}{16}$ in. U.N.C.**

Part Ref.	
68.428	$\frac{5}{16}$ U.N.C. x $\frac{5}{16}$ in. long.
68.429	$\frac{5}{16}$ U.N.C. x $\frac{3}{8}$ in. long.
68.430	$\frac{5}{16}$ U.N.C. x $\frac{7}{16}$ in. long.
68.431	$\frac{5}{16}$ U.N.C. x $\frac{1}{2}$ in. long.
68.432	$\frac{5}{16}$ U.N.C. x $\frac{5}{8}$ in. long.
68.433	$\frac{5}{16}$ U.N.C. x $\frac{3}{4}$ in. long.
68.434	$\frac{5}{16}$ U.N.C. x $\frac{7}{8}$ in. long.
68.435	$\frac{5}{16}$ U.N.C. x 1 in. long.
68.436	$\frac{5}{16}$ U.N.C. x $1\frac{1}{4}$ in. long.
68.437	$\frac{5}{16}$ U.N.C. x $1\frac{1}{2}$ in. long.

Section 69

**$\frac{1}{2}$ Dog Screws – Hex Socket Set
 $\frac{3}{8}$ in. U.N.C.**

Part Ref.	
69.438	$\frac{3}{8}$ U.N.C. x $\frac{3}{8}$ in. long.
69.439	$\frac{3}{8}$ U.N.C. x $\frac{1}{2}$ in. long.
69.440	$\frac{3}{8}$ U.N.C. x $\frac{5}{8}$ in. long.
69.441	$\frac{3}{8}$ U.N.C. x $\frac{3}{4}$ in. long.
69.442	$\frac{3}{8}$ U.N.C. x 1 in. long.
69.443	$\frac{3}{8}$ U.N.C. x $1\frac{1}{4}$ in. long.
69.444	$\frac{3}{8}$ U.N.C. x $1\frac{1}{2}$ in. long.
69.445	$\frac{3}{8}$ U.N.C. x 2 in. long.

Section 70

**$\frac{1}{2}$ Dog Screws – Hex Socket Set
 $\frac{1}{2}$ in. U.N.C.**

Part Ref.	
70.445	$\frac{1}{2}$ U.N.C. x $\frac{1}{2}$ in. long.
70.446	$\frac{1}{2}$ U.N.C. x $\frac{5}{8}$ in. long.
70.447	$\frac{1}{2}$ U.N.C. x $\frac{3}{4}$ in. long.
70.448	$\frac{1}{2}$ U.N.C. x 1 in. long.
70.449	$\frac{1}{2}$ U.N.C. x $1\frac{1}{4}$ in. long.
70.450	$\frac{1}{2}$ U.N.C. x $1\frac{1}{2}$ in. long.
70.451	$\frac{1}{2}$ U.N.C. x 2 in. long.

Section 71

**$\frac{1}{2}$ Dog Screws – Hex Socket Set
 $\frac{5}{8}$ in. U.N.C.**

Part Ref.	
71.452	$\frac{5}{8}$ U.N.C. x $\frac{3}{4}$ in. long.
71.453	$\frac{5}{8}$ U.N.C. x 1 in. long.
71.454	$\frac{5}{8}$ U.N.C. x $1\frac{1}{2}$ in. long.

Section 72

**B.A. Cap Screws – Hex Socket
Head**

Part Ref.	
72.493	3 B.A. x $\frac{3}{8}$ in. long.
72.494	3 B.A. x $\frac{1}{2}$ in. long.
72.495	3 B.A. x $\frac{5}{8}$ in. long.
72.496	3 B.A. x $\frac{3}{4}$ in. long.
70.497	3 B.A. x $1\frac{1}{4}$ in. long.
72.498	3 B.A. x $\frac{7}{8}$ in. long.
72.499	3 B.A. x 1 in. long.

Section 73

Special Screws

Part Ref.	
73.106	No. 10 x 24 x $\frac{3}{4}$ in. long Socket cap domed head.
73.143	$\frac{1}{4}$ U.N.C. x $\frac{3}{8}$ in. long domed head.
73.169	10 x 24 t.p.i. x $\frac{1}{4}$ in. c/sunk screw (slotted).
73.194	$\frac{5}{16}$ in. BSW x $1\frac{1}{4}$ in. long Hex head. Set screw.
73.195	2 BA x $\frac{1}{2}$ in. long. Hollow socket set screw.
73.196	$\frac{1}{4}$ in. BSW x $\frac{3}{8}$ in. long S.H.C.S.
73.197	$\frac{1}{4}$ in. BSW x $\frac{7}{8}$ in. long S.H.C.S.
73.198	2 BA x $\frac{1}{2}$ in. long Hex head set screw.
73.199	$\frac{1}{4}$ in. BSW x $\frac{1}{2}$ in. long S.H.C.S.
73.235	$\frac{5}{16}$ U.N.C. x $3\frac{1}{2}$ in. long Cap screw hex socket head.
73.450	6 BA x $\frac{3}{8}$ in. long Cheese head.
73.471	4 BA x 1 in. long Cheese head.

65213
65214

Section 73 continued

Part Ref.	
73.474	4 BA x 3/4 in. long Cheese head.
73.479	44 x 1/4 in. Drive screws.
73.480	44 x 5/16 in. Drive screws.
73.481	46 x 5/16 in. Drive screws.
73.482	1/4 U.N.C. x 3/8 in. long SKT. Hd. set screw full dog.
73.483	2 BA x 3/8 in. long Cheese head.
73.485	2 BA x 3/8 in. long Cheese head.
73.486	2 BA x 1/2 in. long Cheese head.
73.487	1/4 U.N.C. x 3/8 in. long Mushroom head.
73.493	No.8 x 32 U.N.C. x 3/8 in. long cap screw.
73.494	1/4 U.N.C. x 3/8 in. long cap screw series CX large head
73.507	3 BA x 3/4 in. long set screw cup point.
73.510	7/16 U.N.F. x 7/16 in. long set screw cup point.
73.511	3/16 U.N.C. x 3/8 in. long Mushroom head.
73.512	7/64 Dia. c/sunk head self tapping.
73.513	No.4 x 5/16 in. long 'U' self tapping.
73.514	3/8 U.N.C. x 3/8 in. long brass round head.
73.515	1/2 U.N.F. x 1/2 in. long socket set cup point.
73.516	5/16 U.N.F. x 3/8 in. long socket set cup point.
73.517	2 BA x 7/8 in. long SKT.Csk Hd. screw.
73.518	2 BA x 1/2 in. long Csk Hd screw.
73.519	2 BA x 3/4 in. long SKT.Csk Hd. screw.
73.472	2 BA x 1/4 in. long Cheese head.
73.473	2 BA x 1 in. long socket set screw oval point.
73.489	1/4 B.S.F. x 3/8 in. long S.H.C.S.
73.520	1/4 U.N.C. x 1 in. long flat head.
73.521	2 BA x 3/8 round head brass.
73.522	5/16 U.N.C. x 3/4 in. wedglok set screw.
73.523	5/16 U.N.C. x 1 in. wedglok set screw.
73.524	4 BA x 1/2 in. long Cheese head.
73.525	6 BA x 3/8 in. long Cheese head.
73.526	4 BA x 13/16 in. long Cheese head.
73.527	4 BA x 1/2 in. long Cheese head.

**Section 79
Oil Seals**

Part Ref.	
79.036	Weston. W22515637.R4.
79.037	Weston. W23727550.R4.
79.062	Weston. W16211237.R.
79.069	Weston. W913708225.
79.071	Angus. MS012.
79.171	Weston. W15011225. R4.
79.181	Weston. WB.16911037 R21.
79.188	Burtonwood. 6303.
79.860	$\frac{7}{8}$ i.d. x $1\frac{3}{8}$ o.d. x $\frac{1}{4}$ wide Angus M15 014 W13708725 R4.
79.861	$\frac{15}{16}$ i.d. x $1\frac{3}{8}$ o.d. x $\frac{5}{16}$ wide. Burtonwood 9907.
79.862	$\frac{15}{16}$ i.d. x $1\frac{1}{2}$ o.d. x $\frac{13}{32}$ wide. W15009340.R4.
79.863	1 in. i.d. x $1\frac{5}{8}$ o.d. x $\frac{3}{8}$ wide. W16210037.R4.
79.864	1 in. i.d. x $1\frac{3}{4}$ o.d. x $\frac{1}{4}$ wide. W17510025.R4.
79.865	$\frac{11}{16}$ i.d. x $1\frac{5}{8}$ o.d. x $\frac{5}{16}$ wide. W16210631.R4.
79.866	$\frac{1}{4}$ i.d. x $1\frac{1}{8}$ o.d. x $\frac{3}{8}$ wide. W16912537.R4.
79.867	$\frac{1}{8}$ i.d. x $1\frac{7}{8}$ o.d. x $\frac{5}{16}$ wide. W18713731.R4.
79.868	$\frac{1}{8}$ i.d. x $2\frac{3}{16}$ o.d. x $\frac{3}{8}$ wide. W21916237.R4.
79.869	Nylos grease ring 6205 JV 52 m/m o.d.
79.878	Burtonwood. W15711039R4.
79.779	Burtonwood. 137-1828-12.
79.880	Mis.012.Gaco. MOS/075-125 -8.
79.881	MOS/100-M5-024.
79.882	W16211231R4.

**Section 80
Oil Sights**

Part Ref.	
80.870	Perspex oilsight.SK625.
80.871	$1\frac{1}{4}$ o.d. Tecalemit. IC4610.
80.873	$1\frac{1}{2}$ o.d. Tecalemit. IC4612.

**Section 81
Spanners & Wrenches**

Part Ref.	
81.151	$\frac{15}{16}$ a/f x $\frac{3}{4}$ a/f open end spanner.
81.152	$\frac{9}{16}$ a/f x $\frac{11}{16}$ a/f open end spanner.
81.153	$\frac{7}{16}$ sq. x $\frac{1}{2}$ a/f combination spanner.
81.154	$\frac{15}{16}$ a/f x $\frac{11}{16}$ a/f box Spanner.
81.155	Tommy Bar.
81.156	$\frac{3}{8}$ a/f Allen hexagon key.
81.157	$\frac{5}{16}$ a/f Allen hexagon key.
81.158	$\frac{7}{32}$ a/f Allen hexagon key.
81.159	$\frac{3}{16}$ a/f Allen hexagon key.
81.161	$\frac{1}{8}$ a/f Allen hexagon key.
81.162	$\frac{3}{32}$ a/f Allen hexagon key.
81.163	$\frac{3}{8}$ x $\frac{7}{16}$ U.N.C. open end spanner.
81.164	$\frac{15}{16}$ x $1\frac{1}{8}$ a/f box spanner.
81.165	$\frac{1}{2}$ x $\frac{3}{4}$ a/f ring spanner.

**Section 82
Springs**

Part Ref.	
82.063	Flexo.163208.
82.064	707.0040 0.240 Dia. x $\frac{9}{16}$ in. free length.
82.065	707.0035 0.312 Dia. x $1\frac{7}{16}$ in. free length.
82.066	.237. o/d x $1\frac{1}{8}$ in. free length.
82.068	707.0005 0.175 o/d x $\frac{3}{8}$ in. free length.
82.072	707.0036 0.562 Dia. x $2\frac{1}{8}$ in. free length.
82.076	707.0045 0.500 i.d. x 3 in. free length.
82.078	707.0028 0.237 Dia. x $1\frac{1}{8}$ in. free length.
82.082	Flexo 103108.
82.102	707-0030 0.625 Dia. x $1\frac{1}{2}$ in. free length.
82.103	707.0030 0.3125 Dia. x $1\frac{1}{4}$ in. free length.
82.105	Flexo 82504.
82.107	Flexo 62604.
82.108	$\frac{3}{8}$ D.P. x $\frac{7}{8}$ in. free length.
82.109	Flexo 136314.
82.110	707.0008 $\frac{5}{8}$ Dia. x 2 in. free length.
82.111	707.0024 0.350 Dia. x $1\frac{1}{4}$ in. free length.
82.112	707.0032 $\frac{13}{16}$ Dia. x $1\frac{5}{8}$ in. free length.
82.113	707.0027 $\frac{1}{2}$ Dia. x $\frac{1}{2}$ in. free length.
82.120	707.0046 $\frac{5}{16}$ Dia. x $\frac{5}{8}$ in. free length.
82.121	707.0043 $\frac{9}{16}$ Dia. x $1\frac{5}{8}$ in. free length.
82.122	707.0025 0.296 Dia. x $1\frac{9}{16}$ free length.
82.123	707.0020 0.885 Dia. x $1\frac{1}{4}$ in. free length.
82.132	707.0034 $1\frac{1}{64}$ Dia. x 1 in. free length.
82.175	Compression spring.
82.179	Tension spring.
82.794	707.0023 $\frac{1}{4}$ Dia. x $\frac{13}{16}$ in. free length.
82.795	707.0021 $\frac{1}{4}$ o/d x $\frac{1}{2}$ in. free length.
82.796	Flexo 82804.
82.797	$\frac{1}{4}$ o/d x $\frac{5}{8}$ in. free length.
82.798	Flexo 82806.
82.799	Flexo 82708.
82.800	Flexo 92910.
82.801	Flexo 93012.
82.802	Flexo 93107.
82.803	Flexo 103210.
82.804	Flexo 123106.
82.805	Flexo 143112.
82.806	Flexo 203512.
82.807	Flexo 223412.
82.808	Flexo 223612.
82.809	Flexo 243698.
82.810	Flexo 243724.
82.811	Flexo 323608.
82.812	707.0014 0.180 Dia. x $2\frac{1}{32}$ in. free length.
82.813	Flexo 143008.
83.814	707.0031 $\frac{3}{8}$ Dia. x 14 SWG
82.815	707.0015 $\frac{5}{16}$ Dia. x $1\frac{7}{8}$ OA.
82.816	707.0022 $\frac{5}{16}$ Dia. x $2\frac{1}{8}$ OA.
82.817	707.0016 $\frac{1}{2}$ Dia. x $2\frac{3}{16}$ in. free length.
82.818	707.0033 0.240 Dia. x $\frac{5}{8}$ in. free length.
82.819	22.5 m/m x 11.2 m/m x 8 m/m Schnorr disc spring

Section 82 continued

Part Ref.	
82.820	$1\frac{1}{8}$ o/d x .453 i.d. x .040 Beleville No.7.
82.821	$\frac{5}{8}$ i.d. x $\frac{15}{32}$ o/d Crinkle washer spring.
82.822	LSE 8596. Crinkle washer spring.
82.823	Flexo 62704.
82.824	Flexo 103208.
82.825	Flexo 122908.
82.826	Flexo 82805.
82.827	Flexo 62502.
82.828	Flexo 237508.
82.829	Flexo AA3516.
82.830	Flexo 123306.
82.831	Flexo 122906.
82.832	Flexo 153212.
82.833	Flexo 62603.
82.834	Flexo 143008.
82.835	Flexo 163314.
82.836	Flexo 244012.
82.837	Flexo 112808.
82.838	Flexo 112807.
82.839	Flexo 112908.

**Section 83
Switches**

Part Ref.	
83.985	Craig & Derricott CLS.
83.986	Klockner & Moeller. AT/ 11A/2/1.
83.987	Klockner & Moeller. AT-3- 1.
83.988	Klockner & Moeller. TW2- 3/21c.
83.989	Santon 128/AD55/TB.
83.990	Santon SR3212/BE/80/TB3.
83.991	Santon SR1311 PC.
83.992	Santon SS3311 PC.
83.993	Santon SR338/BF/49/TA3.
83.994	Santon SR326AY37/9/TA
83.995	Santon SR237.
83.996	Craig & Derricott RTL3049 AS.
83.996	Crabtree B15 16107/3.
83.998	Crabtree B15 starter 1-4 amp.
83.999	Crabtree B15 starter 1.5-3 amp.
83.001	Crabtree B15 skelton contact.
83.002	Crabtree B23 contactor.
83.003	Crabtree D6 starter 14101.
83.004	Crabtree D6 starter 14104.
83.005	Crabtree D6 starter 1.1-1.8 amp.
83.006	Siemens contactor K915- 1115-1A.
83.007	Santon ESX 1311 PC.
83.008	Santon ESR3314/AB/65.
83.009	Klockner & Moeller TW2 3/63e.
83.010	Klockner & Moeller T2-2-C
83.012	Klockner & Moeller TD2- 415-c.
83.013	Chilton S258AB766E.
83.014	Chilton C258AB424.
83.015	Chilton C25A292E.
83.017	MEM. 310 AX.
83.019	Santon ESR 3311 PC.

Section 83 continued

Part Ref.	
83.049	Stop button Brooks type Z
83.050	Stop button Brooks type Z.
83.051	UC2 contactor.
83.052	Overload block.
83.053	Heater coil for overload block.
83.054	Moving contact for UC2 contactor.
83.055	Aux. contact for UC2 contactor.
83.056	Fixed contact for UC2 contactor.
83.057	Coil for UC2 contactor.
83.083	40 watt Stepdown transformer primary 220/440/550 V.
83.085	Starlight transformer GD Underwood input 250/500 V. 1 1/2 amp.
83.086	Burgess Mk.3 BR 600 V 2A Mico switch.
83.087	Moving contact for Crabtree B15 starter 1600/13.
83.088	Fixed contact for Crabtree B15 starter 1600/11.
83.089	Crabtree cable clamp assy. 1600/19.
83.092	Overload release unit Crabtree type 16007 3.6 amp.
83.093	Magnet coil Crabtree type 1600/9/5 380-420 V.
83.094	Crabtree B15 starter interior type.
83.095	Crabtree B15 starter moving contact 28011.
83.096	Crabtree series 16021. Aux. contact.
83.100	Crabtree contactor magnet 16000/20.
83.126	Shunt block extension for B23 Crabtree starter.
83.127	Spacer for B23 Crabtree starter.
83.128	Cable clamp extension for B23 Crabtree starter.
83.129	Overload release unit for B23 Crabtree starter.
83.130	Starter bottom assy c/w baseplate Crabtree B23.
83.150	Crabtree starter type D6 0.75-1 2A.
83.163	Crabtree B15 D & C starter 16104/5.
83.164	Crabtree B15 D & C starter 16199.
83.167	MEM.1315 AX 15 A isolator
83.168	Klockner & Moeller T2-4/60-102/7.
83.174	Sliding contact & block.
83.176	Toggle contact complete.
83.177	L/H slipper contact.
83.178	R/H slipper contact.

Section 84
Locking Washers

Part Ref.	
84.067	3 3/4 o/d x 2.260 i.d. x .169 tab washer.
84.077	Terry Belleville washer No.10.
84.097	43A tag washer.
84.098	3/16 star washer.

Section 84 continued

Part Ref.	
84.099	3/16 bore tab washer.
84.701	3/16 Dia. bore single coil.
84.702	1/4 Dia. bore single coil.
84.703	5/16 Dia. bore single coil.
84.704	3/8 Dia. bore single coil.
84.705	7/16 Dia. bore single coil.
84.706	1/2 Dia. bore single coil.
84.707	9/16 Dia. bore single coil.
84.708	5/8 Dia. bore single coil.
84.709	3/4 Dia. bore single coil.
84.710	7/8 Dia. bore Grover lock spring washer.
84.711	3/16 Dia. bore double coil.
84.712	1/4 Dia. bore double coil.
84.713	5/16 Dia. bore double coil.
84.714	3/8 Dia. bore double coil.
84.715	7/16 Dia. bore double coil.
84.716	1/2 Dia. bore double coil.
84.717	9/16 Dia. bore double coil.
84.718	5/8 Dia. bore double coil.
84.719	3/4 Dia. bore double coil.
84.720	11/16 Dia. bore single coil.
84.721	2 BA Std. lock washer.
84.722	11/16 Dia. bore double coil.
84.723	7/8 Dia. bore double coil.
84.724	7/8 Dia. spring washer.
84.725	Schnorr disc spring washer. type K.620L.
84.726	Terry's std. Belleville No. 7.

Section 85
Standard Washer

Part Ref.	
85.690	3/16 Dia. bore.
85.691	1/4 Dia. bore.
85.892	5/16 Dia. bore.
85.693	3/8 Dia. bore.
85.694	7/16 Dia. bore.
85.695	1/2 Dia. bore x 1 o/d x .092 in. W.
85.696	1/2 Dia. bore x 1 1/8 o/d x .062 in. W.
85.697	9/16 Dia. bore.
85.698	5/8 Dia. bore.
85.699	3/4 Dia. bore.
85.700	1/2 in. i.d. x 5/16 Thick.
85.701	11/16 Dia. bore.
85.702	7/8 Dia. bore.
85.720	2 BA Std. plain washer.
85.727	0.445 i.d. x 0.660 x 18 SWG plain.
85.728	1 o/d x 3/4 i.d. x 3/8 Thick.

Section 86
Washers Miscellaneous

Part Ref.	
86.029	3/4 Internal fan disc washer
86.030	7/8 Internal fan disc washer
86.043	1 1/8 o/d x 3/4 i.d. x 3/16 Thk. leather washer.
86.044	1 1/4 o/d x 3/4 i.d. x 3/16 Thk. leather washer.
86.045	1 5/8 o/d x 1 1/8 i.d. x 3/16 Thk. leather washer.
86.058	3/8 in. 5° taper washer.
86.080	AD 1528 Ina thrust washer
86.118	1 1/4 o/d x 7/8 i.d. x 1/8 SKT leather washer.
86.119	1/2 i.d. fan disc washer.
86.133	Dowty rubber washer GD1321-3.
86.722	1 1/2 o/d x 2 1/2 x 1/2 in. leather washer.
86.723	1 1/4 o/d x 2 1/2 x 1/8 in. leather washer.
86.730	3BA large plain washer BS.3910/1961.
86.731	Tab washer Ref HHI/AG.
86.732	5/16 HP washer.
86.733	Belleville washer 1383/10.
86.734	1/2 i.d. x 3/16 o/d fibre washer
86.735	Beryllium copper washer. Ref.LSE 8596.
86.738	1/4 bore shakeproof.
86.740	Dubo No.105 washer.
86.741	3/16 bore x 7/16 o/d x 1/16 Thk rubber.

Section 87
Thread Inserts

Part Ref.	
87.823	9/16 U.N.C. Helicoil.
87.824	3/8 U.N.C. x 9/16 in. long. Helicoil.
87.825	1/2 U.N.C. Helicoil.

Section 88
Miscellaneous

Part Ref.	
88.041	Brass pad 1/16 in. Thk. x 3/16 in. dia.
88.070	3/8 in. solid gas plug.
88.073	Tecalmit 4336-2 90° M & F elbow.
88.074	Spire SRV 1590 (A) door latch.
88.075	Spire SBV 1691 door latch Stud.
88.076	1 in. solid gas plug.
88.046	1/2 in. U.N.C. x 2 1/2 in. long stud.
88.147	1/4 in. B.S.F. ball joint.

6541-3
6541-4

Section 1000

Part Ref.	
1001	Selector Switch Type T2-4/90-z Comprising of:
	1004 Switch Spindle Extension
	1005 Indicator Mounting Plate
	1006 Indicator Back Plate
	1007 Switch Indicator Plate - Motor fwd. Motor rev.
	1009 Thumb Grip Handle (Black)
1002	Selector Switch Type T26-2-z Comprising of:
	1004 Switch Spindle Extension
	1005 Indicator Mounting Plate
	1006 Indicator Back Plate
	1007 Switch Indicator Plate - Brake Re- lease - Coolant Pump
	1009 Thumb Grip Handle (Black)
1003	Triple Pole Isolator Switch Type T26-3-v Comprising of:
	1004 Switch Spindle Extension
	1005 Indicator Mounting Plate
	1006 Indicator Back Plate
	1007 Switch Indicator Plate - Mains ON - OFF
	1008 Thumb Grip Handle (Red)
1010	Neoprene Inch Button Cap Type G - T
1011	Inch Button Type DT.r
1012	Retaining Ring - Integral Part of 1010
1013	Retaining Screwed Collar - Integral Part of 1011
1014	Isolator Shroud Type T2
1015	Triple Pole 25A Fuse Base Type S 25/3
1016	Single Pole 25A Fuse Base Type SH.25/1.1
1017	Fuse Holder Type K11(25A) or Type K111(25- 60A)
1018	4A. Control Circuit Fuse Type TDZ.11.4.
1019	Main Phase Fuse 25A - Type TDZ.11.25 35A - Type TDZ.111.35 60A - Type TDZ.111.60
1020	Forward and Reverse Contactor Type DIL.2/ 57
1021	Control Transformer Type ET.200
1022	Star Point Contactor Type DIL.0-41/56
1023	No Volt Contactor Type DIL.00a-41/59
1024	Overload Relay Type Z.2
1025	Connecting Terminals Type RK.4(SAK.2.5)
1026	Terminal Barriers Type T.W. i/130.i
1027	Terminal End Plate Type AP.10/1179
1028	Terminal End Clamp Type EWK/1846
1029	Terminal Rail Type TS.32/120/1288
1030	Sleeves - Integral Part of 1020
1031	Inch Contact Black Type AK-44a
1032	Limit Switch Type AT.21-5-i
1033	Male Conduit Adapter Coupling
1034	Female Conduit Adapter Coupling
1035	Pump Conduit Adapter
1036	3 Way Female Coupling
1037	Male Conduit Adapter
1038	1/2 in. B.S.P. Locknut
1039	3/4 in. Bore Flexible Conduit
1040	1/2 in. Bore Copper Pipe
1041	Kingley Coupling Type 304 (Female)
1042	Kingley Coupling Type 304 (Male)
1043	3m x 12mm Round Head Screw
1044	4m x 8mm Cheese Head Screw
1045	4m x 12mm Cheese Head Screw
1046	4m x 15mm Cheese Head Screw
1047	4m x 20mm Cheese Head Screw
1048	4m x 35mm Cheese Head Screw
1049	4m x 105mm Cheese Head Screw
1050	5m x 9mm Cheese Head Screw
1051	BT.787.1 Nut
1052	5m x 12mm Cheese Head Screw
1053	3/16 in. U.N.F. x 3/8 Cheese Head Screw
1054	5mm Nut
1055	4mm Standard Washer
1056	4mm Shakeproof Washer
1057	5mm Standard Washer
1058	5mm Shakeproof Washer

6076.2
6076.4