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INTRODUCTION

Setting the pace of the seventies in vocational training and industrial uses is this range of metal turning lathes which incorporate many advanced automated and safety features not found on other machines of comparable size and cost.

They have been designed as the result of extensive surveys into technical training and industrial requirements and include many 'extras' within the basic price. They reduce supervision requirements and increase the safety factor when operated by unskilled personnel.

In the interests of continued improvement, we reserve the right to change without notice the design and specifications of the machines described in the following pages.

SERIAL NUMBER

In the event of any difficulty arising with this lathe, contact your supplier or the Service after Sales Dept. Telephone: 048-47 2264 (3 lines) Cables: Denmacto, Brighouse, Telex: 517478 Denmac G. and state:- (New Telephone Number from (January 1st 1977) 0484 712264)

1. Type and model of machine
2. Serial number of machine. This number will be found clearly marked on the foot of the machine. Example:–

NOTE. This number must always be quoted when entering into any correspondence regarding service, spare parts etc.

INSTALLATION AND FOUNDATION

Once delivery of a 'Viceroy' Lathe has been effected the first thing to do is to clean the machine thoroughly with non corrosive solvent, wiping dry afterwards with a clean cloth. The unpainted surfaces should be covered with a film of good quality machine oil to protect against rust and discolouration.

The standard and extra equipment should all be inspected and cleaned and carefully put away until required. At this stage installation can be started.

The 'Viceroy' Metal Turning Lathe base plates are of large area, especially designed to be mounted on rubber or felt pads. Holes are also provided for bolting down in the traditional manner, using 3 points only.

Installation drawings and details of the anti-vibration pads or mats are available on request. Whichever method is chosen for the foundation of the lathe, it is essential that the floor under the machine is level and if it is wood, adequate steps should be taken to ensure that the lathe is secure. If it is decided to bolt the lathe down it is essential that the locking nuts of the foundation bolts are NOT OVER-TIGHT – finger tight only. To ensure the Lathe is accurately installed a precision level should be used across the lathe bed at both the headstock and tailstock ends. Twist in the bed should not exceed .064 MM/0.0025" per foot if the works tested accuracy is to be transmitted to the work being turned. Special adjustment screws under the feet of the lathe bed are provided, but under no circumstances should these be touched until the cabinet base has been correctly levelled in relationship to the floor by using a precision level across the bed, as each lathe is carefully set up at works prior to shipping.

AFTER THE INSTALLATION AND LUBRICATION IS COMPLETED THE FOLLOWING SHOULD BE NOTED:–

SPINDLE SPEEDS

The range of 8 speeds is shown on the headstock chart incorporating the relative belt positions from motor to countershaft pulley. The speeds are obtained by moving the 'V' belt to the positions required on the motor and countershaft pulleys (inside the cabinet) in conjunction with the back gear lever to the 'in' or 'out' position.

BELT POSITIONING

For adjusting the belt to the required position the belt tensioning lever, fitted to the motor platform inside the cabinet base, must be moved from the vertical (tight) to the horizontal (slack) position. N.B. the cabinet door cannot be closed until the lever is in the vertical or driving position, therefore the lathe cannot be operated until the belt change cycle is complete.

MOTOR PLATFORM ADJUSTMENT FOR BELT TENSIONING TO COUNTER/SHAFT

Adjustment for belt tensioning is made by raising or lowering the lock nuts on the motor platform support spindle until belt tension is adjusted correctly. If not able to obtain correct tension by this method, shorten or lengthen the 'V' belt by removing or adding links as required.

COUNTER-SHAFT TO SPINDLE BELT TENSIONING

Slight adjustment can be made by adjusting the screws fitted to the base of the counter-shaft brackets, if tension is not sufficient it will be necessary to remove one or more links from the belt.

LINK BELT

The use of this type of belt means spindles etc. do not have to be removed for repairing or replacing belts.

BACK GEAR – DO NOT ATTEMPT TO ENGAGE WHILST THE LATHE IS RUNNING

To engage move single lever through 180° to position required. To assist the engagement of the sliding gears it is sometimes necessary to move the main spindle slightly. The back gear lever can be locked in either position by means of the grub screw in the lever.

REVERSE TRAVERSE GEAR LEVER (INSIDE THE END DRIVE GUARD). DO NOT ENGAGE WHILST THE LATHE IS RUNNING.

This is a quick means of reversing the motion of the power feeds longitudinal or cross. There are three positions – the central one is neutral, (no drive to the power feeds). The top or bottom positions transmit the drive. The reversal of feeds is obtained by moving the lever from one position to the other. Whilst the end drive guard is open, the lathe cannot be started.

APRON AND LONGITUDINAL TRAVERSE

The carriage is moved along the bed by turning the apron handwheel, if not under power. The carriage locking nut located on the apron must be tightened **only for facing or parting off, and must always be released before using power feed or hand traverse.**

COMPOUND SWIVEL SLIDE

The cross-feed and compound handles are turned to move the tool rest in and out on a lateral movement. For moving the swivel slide to the correct angle for screwcutting etc. release the three screws that clamp the slide, these are located at each side and the front of the compound slide. BEFORE COMMENCING OTHER OPERATIONS THE SCREWS MUST BE TIGHTENED, BUT NOT OVER TIGHTENED.

SADDLE JIB.

This part is located under the saddle behind the bed and is the means of adjusting the saddle to the bed. The two socket head cap screws should be tightened against the spring washers, sufficiently to allow easy movement of the carriage when turning the apron handwheel – DO NOT OVER-TIGHTEN.

SADDLE ANTI-LIFT SLIDING CLAMP

This is located underneath the bed-ways and has been pre-set at works and should require no further adjustment unless the saddle is removed. If resetting is required – DO NOT OVER-TIGHTEN.

CROSS-SLIDE AND TOOL-SLIDE JIBS

Adjustment to these jibs is effected by releasing the lock-nuts and applying equal pressure to each of the grub screws until all play is taken up on the slides, but should be free to allow the 3-ball handles to be turned without applying too much pressure; the locknuts must then be tightened before use.

MICROMETER DIALS

Each graduation, on the dials fitted to the cross and tool-slides, represents a movement of .02 MM (METRIC) or .001" (ENGLISH). The dials are friction loaded.

OPERATION OF THE TAILSTOCK

By tightening the eccentric clamp via the lever the tailstock can be locked in any position on the lathe bed. Adjustment can be effected by tightening or slackening the nut under the tailstock shoe. When adjusted and locked the clamping lever should be in the approx. vertical position.

TAILSTOCK BARREL LOCK

The handle must be tightened when set up for turning between centres and other similar work.

ADJUSTING THE TAILSTOCK

When the tailstock is to be set over for taper turning, release the tailstock clamp and screw the square head adjusting screws in the direction required. Be sure to release the opposite screw. Tighten but NOT OVERTIGHTEN after setting.

CABINET MICRO-SWITCH

When belt adjustments have been effected inside the cabinet base a test run can be made by LIFTING and PULLING GENTLY the toggle of the micro switch fitted to the cabinet door. The lathe will not start until the cabinet door is closed.

'VICEROY' TDS 1/1 GB LATHE
'VICEROY' TDS 1/2 PCS LATHE

FOR METHOD OF OPERATION GEAR BOX AND AUTO APRON SEE BELOW AND DRAWINGS OPPOSITE

All screwcutting feeds are through the 3MM Leadscrew for metric pitches – or 8 T.P.I. Leadscrew for Whitworth Threads. Sliding and surfacing feeds are through separate feed shaft. See Charts fitted to gear box or end-drive guard.

AUTO-ADJUSTABLE TRAVERSE TRIP-FITTED TO TDS 1/1 GB & TDS 1/2 PCS FEED SHAFTS.

This is a SAFETY FEATURE eliminating any risk of over-run when set correctly.

SETTING METHOD

To predetermine the position of COLLAR (J) for auto-traverse longitudinal feed trip:–

a) Release grub screw.
b) Set COLLAR (J) to position required.
c) Lock Collar (J) in position by means of grub screw.
d) The apron will then be moved automatically or by hand against collar (J) and the feed shaft drive will disengage within the gear-box.
Approx. longitudinal movement before disengagement 1/4" – 6 MM.
e) To re-engage the gears in the gear box, simply wind the apron away from the Headstock.

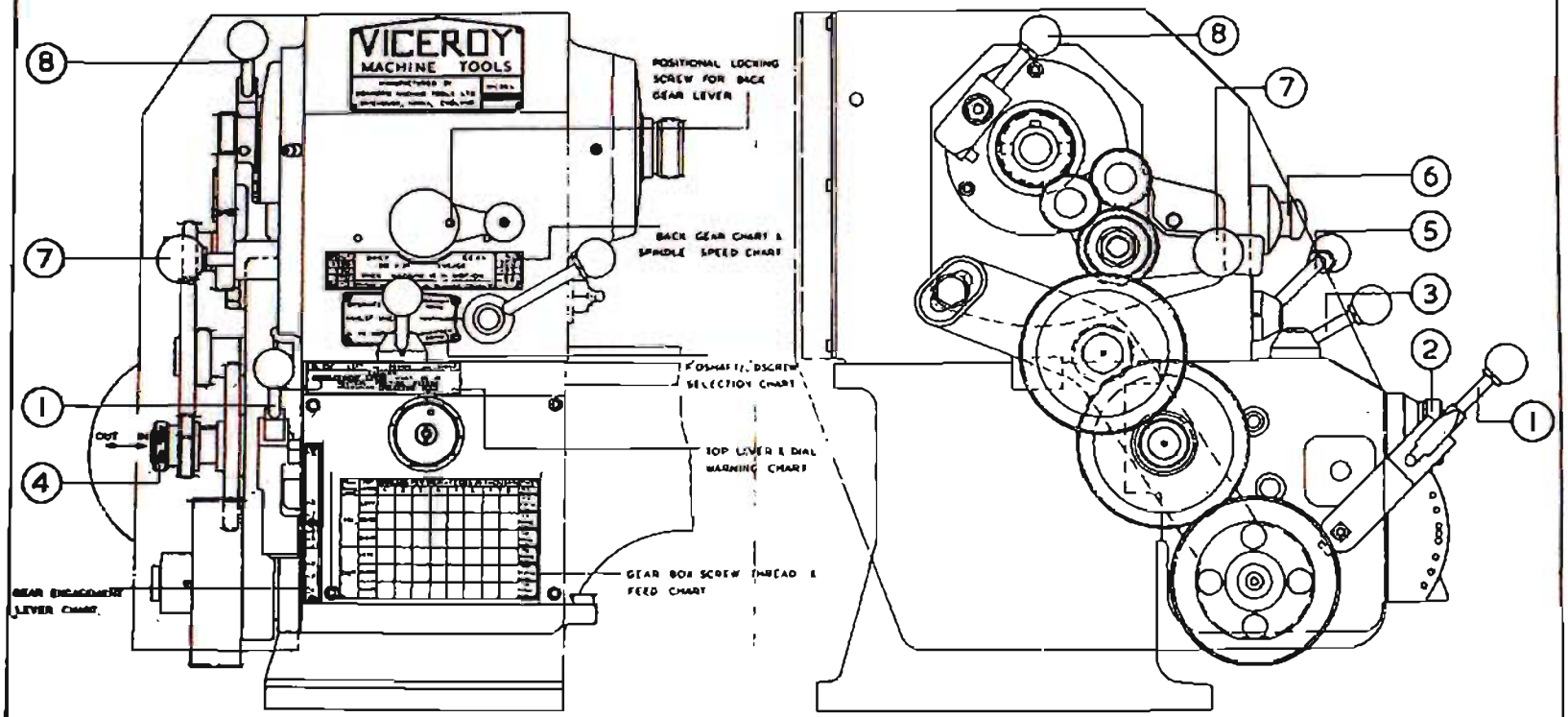
IMPORTANT

When SCREWCUTTING or using the LEADSCREW, the COLLAR (J) MUST BE RELEASED so as not to interfere with apron movement.
Screw cutting traverse trip also available.

GEAR BOX OPERATING INSTRUCTIONS FOR 'VICEROY' T.D.S. I/I. G.B. —— G.B. LATHE.

DRG. No.

① GEAR ENGAGEMENT LEVER (MARKED I-II & NEUTRAL N POSITION)
② SELECTOR DIAL. (MARKED I-II)
③ TOP LEVER. (MARKED LEFT - CENTRE - RIGHT)
④ QUADRANT SLIDING GEAR (LOCATED INSIDE END DRIVE GUARD)
⑤ FEEDSHAFT / LEADSCREW SELECTION LEVER.
⑥ BACK GEAR LEVER.
⑦ F'DSHAFT/L'DSCREW TRAVERSE REVERSING LEVER (LOCATED INSIDE END DRIVE GUARD.)
⑧ SPINDLE LOCK (LOCATED INSIDE END DRIVE GUARD.)



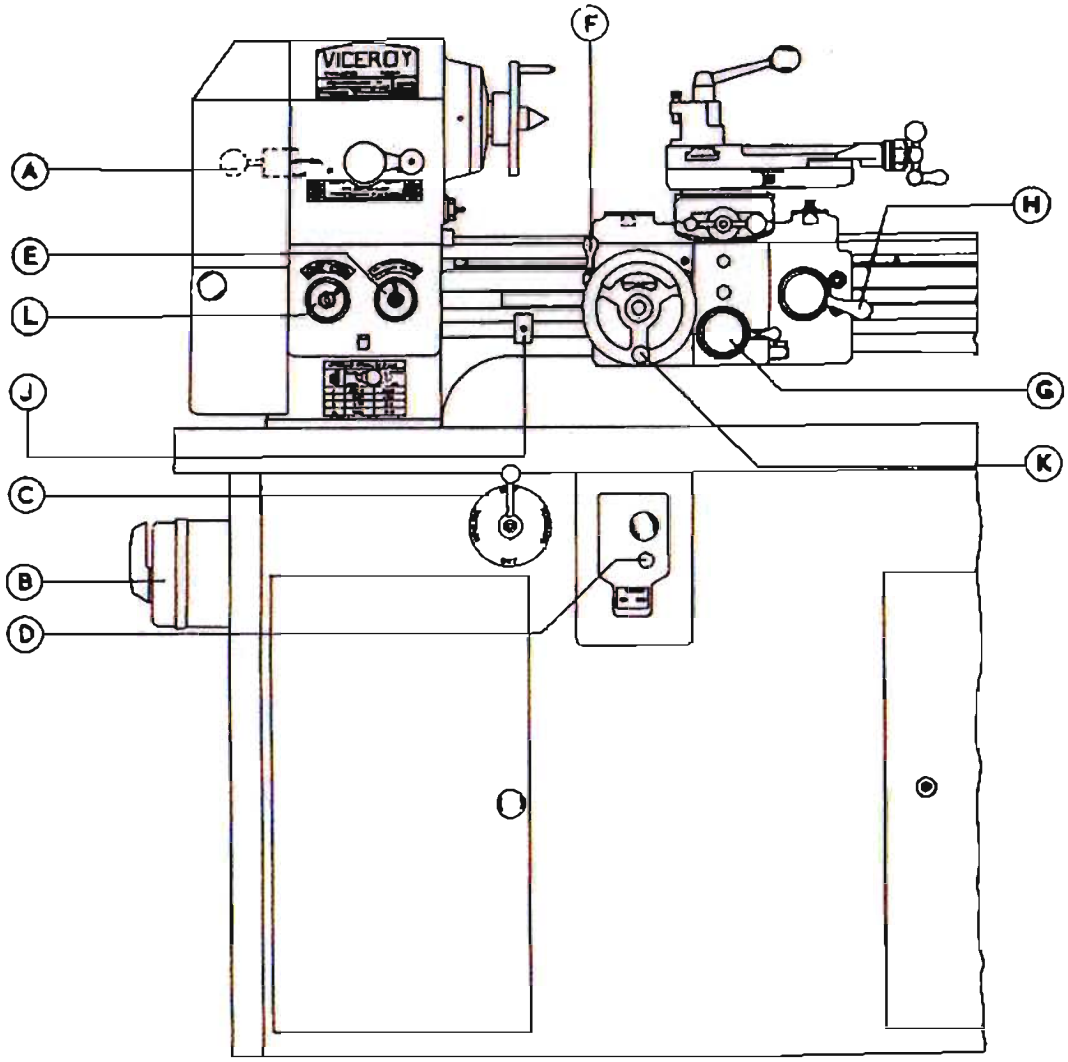
(A) FOR THE SELECTION OF SPINDLE SPEEDS REQUIRED SEE CHART ON HEADSTOCK, MOVE 'V' BELT LOCATED INSIDE CABINET TO THE POSITION REQUIRED THEN MOVE BACK GEAR LEVER (ITEM 6) TO EITHER IN OR OUT POSITION DEPENDING ON SPEEDS CHOSEN. MAKING SURE THE LATHE IS NOT RUNNING WHILST CHANGING BACK GEARS. FOR ENGAGEMENT ROTATE SPINDLE OR CHUCK BY HAND
(B) FOR THE SELECTION OF FEED REQUIRED, SEE CHART ON FRONT OF GEAR BOX
(C) MOVE QUADRANT SLIDING GEAR (ITEM 4) TO EITHER IN OR OUT POSITION DEPENDING ON FEED SELECTED
(D) START LATHE. MOVE GEAR ENGAGEMENT LEVER (ITEM 1) TO NEUTRAL POSITION MARKED (N) ON GEAR ENGAGEMENT CHART.
(E) SET SELECTOR DIAL (ITEM 2) TO POSITION REQUIRED ON FEED CHART DO NOT MOVE SELECTOR DIAL (ITEM 2) UNLESS GEAR ENGAGEMENT LEVER (ITEM 1) IS IN NEUTRAL (N) POSITION.
(F) MOVE GEAR ENGAGEMENT LEVER (ITEM 1) TO CORRECT NUMBERED POSITION SHOWN ON GEAR ENGAGEMENT LEVER CHART, CORRESPONDING TO THE SELECTOR DIAL (ITEM 2) NUMBER SELECTED
(G) MOVE TOP LEVER (ITEM 3) TO EITHER LEFT - CENTRE - RIGHT POSITION FOR FEED REQUIRED AS INDICATED ON GEAR BOX FEED CHART. WHEN LATHE IS RUNNING.
(H) F'DSHAFT/L'DSCREW SELECTION LEVER (ITEM 5) SHOULD BE MOVED TO EITHER F'DSHAFT - NEUTRAL - L'DSCREW AS DESIRED WHEN LATHE IS RUNNING.

WHEN THE ABOVE INSTRUCTIONS HAVE BEEN CARRIED OUT YOUR 'VICEROY' LATHE WILL BE READY FOR USE.

NOTES

(J) F'DSHAFT/L'DSCREW TRAVERSE REVERSING LEVER (ITEM 7) IS A QUICK METHOD OF REVERSING THE DIRECTION OF POWER FEED.
(K) SPINDLE LOCK (ITEM 8) PREVENTS SPINDLE ROTATION TO ENABLE EASIER REMOVAL OF CHUCKS AND FACEPLATES ETC., LATHE CANNOT BE STARTED UNTIL SPINDLE LOCK IS DIS-ENGAGED AND END DRIVE GUARD IS CLOSED.

DO NOT USE FORCE ON ANY LEVER AND ENSURE THAT LATHE IS RUNNING TO EFFECT CORRECT ENGAGEMENT AS INSTRUCTED ABOVE



AUTO-APRON OPERATING INSTRUCTIONS FOR TDS 1/1 GB and TDS 1/2 PCS LATHES. (ENGLISH & METRIC)

(1) Select correct spindle speeds from chart, ensuring that quadrant gears are correctly meshed.
NB. For operation of Gear Box, see separate sheet of instructions.

(2) Check that reversing bracket gears 'A' are in correct position for rotation of Leadscrew or Feedshaft, and that the end drive guard is closed.

(3) Switch the machine on at the isolator 'B'. Check that cabinet door is closed. Set reversing switch 'C' to direction of rotation required.

(4) Check that both the compound and tool are clear of the chuck or faceplate.

(5) Press the Green Starter Button 'D'.

(6) With the main spindle running, engage leadscrew or feedshaft by means of dial 'E' ensuring that the apron change lever 'F' is in neutral.

(7) IF USING THE FEEDSHAFT:—
(a) Engage lever 'F' for SLIDING LONGITUDINAL feeds by pulling towards you.
(b) Engage lever 'F' for SURFACING CROSS feeds by pushing away from you.
(c) Finally, engage the feedshaft itself by pushing down lever 'G'.
NB. A limit collar 'J' is fitted to the feedshaft for auto-knock off of apron, (see separate instructions).

(8) IF USING THE LEADSCREW:—
Engage by lifting lever 'H'.
(See separate details for the use of thread dial indicators, both English & Metric—extra equipment).

(9) A Safety Locking Device is incorporated in the apron to prevent both worm carrier lever 'G' and screwcutting lever 'H' from being engaged at the same time.

(10) For range of pitches and feeds available, refer to the chart supplied with the machine.

(11) For hand traverse use handwheel 'K'.

(12) Dial L for selecting standard or coarse feeds only.

DENFORD MACHINE TOOLS LTD. BRIGHOUSE HD6 1NB. U.K. TEL: 0484 712264

OPTIONAL EXTRA EQUIPMENT

Spindle Chucks. All chucks are supplied fitted to the backplate ready for screwing onto the spindle nose of the lathe. No chips, burrs or small particles of dirt must be allowed to lodge on the spindle register or screw heads.

The screws and register should be **thoroughly** cleaned before use. It is advisable to clean all threads and faces of the backplate and spindle nose, then smear a film of oil before fitting chucks etc. to the spindle nose. This facilitates removal of chucks etc.

Types of Chuck. The 3-jaw self centring chuck will grip round work quickly since the 3-jaws move simultaneously and centre the work automatically. Two sets of jaws are supplied, one for internal gripping and one for external. The 100 MM (4") 4-jaw self centring chuck is ideal for square and hexagon bar. The 4-jaw independent chuck is used for irregular shaped work which has to be machined and centred to run dead true. The Jaws on these chucks are reversible. The drill chuck is used to hold drills, reamers, taps etc., in both the headstock and the tailstock of the lathe. Capacity is 0–12 MM (0–1/2") or 3 MM – 19 MM (3/16"–3/4") diameter with keys for tightening.

Lathe Tools and their Applications. The correct sharpening method and type of lathe tool must always be used if the lathe is to turn efficiently and accurately. The tool must have a keen and well supported cutting edge which has been ground for the particular material which is being machined. (Tool Chart available on request).
Three types, Left Hand, Right Hand and Straight Turning Toolholders are usually used in conjunction with the single way (standard) type of toolpost and the 4-way 2-way and American Toolpost (Extras). We manufacture and supply a range of general purpose American and English Lathe Toolholders. Other types of toolholders are available for boring, parting off, threading and knurling etc. A full range is listed on our illustrated leaflet.

COLLET CHUCK. For precision and repetition work it is advisable to use a collet attachment, which is the most accurate of all types of work holding methods. Work to be held in a collet should be within the capacity of the normal collet sizes, which are available up to 0.12 MM (1/2") capacity.

THREAD DIAL INDICATOR. Available for Metric or English. This is used to save time, particularly when cutting long screw threads. When the lathe is set up for cutting screw threads, the thread dial indicator indicates the relative positions of the leadscrew, spindle, and carriage of the lathe. This permits the half-nuts to be disengaged from the leadscrew at the end of a cut, returning the carriage quickly to the starting point by hand without reversal of the lathe spindle, re-engaging the half-nuts with leadscrew at an equivalent point ensuring the tool follows exactly the original cut.

FIXED STEADY. The purpose of the fixed steady is to support long shafts of small diameter whilst being turned, and for boring and threading spindles. The steady is fitted to the lathe bed and is adjustable by setting the 3 adjustable points to allow the work piece to run concentric.

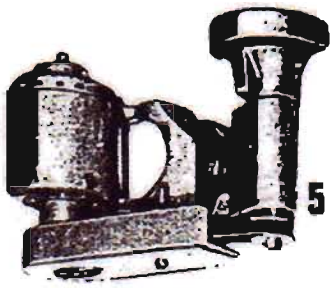
TRAVELLING STEADY. The purpose of the travelling steady is to support work of a small diameter which might otherwise spring away from the cutting tool. The steady is fitted to the rear of the saddle and is set with the jaws to bear directly on the diameter of work – adjustments are effected in the same way as a fixed steady. The steady should be located approximately 1/4" to the left of the tool.

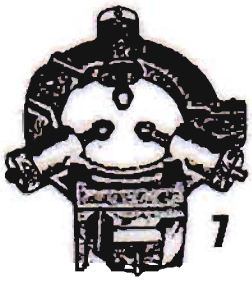
PLAIN OR ADJUSTABLE CARRIAGE STOPS. These are used for facing shoulders to an exact length and are clamped to the lathe bed in the position required to act as a stop for the carriage.

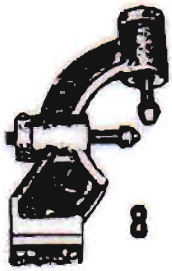
COOLANT EQUIPMENT. Machines can be supplied with a coolant pump, complete with tank. Pressure for the pump is pre-set at the works. The small tap on the outlet pipe fitted to the cross-slide adjusts the flow of coolant required. To clean the tank, fitted inside the cabinet, remove it by releasing the self-tapping screws at the rear of the cabinet.

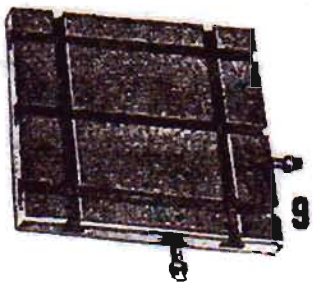
OTHER ACCESSORIES AVAILABLE ON REQUEST

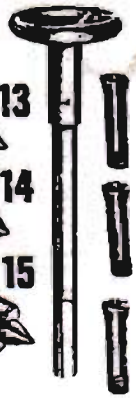
1 3-jaw S.C. Chuck & Spare Jaws
2 ____4-jaw Independent Chuck
3 ____4-jaw S.C. Chuck
4 ____Drill Chuck & Key
5 ____Tool Post Grinder
6 ____Tool Post Internal Spindle
7 ____Fixed Steady
8 ____Travelling Steady
9 ____Boring Table
10 ____Drill Set 29 Drills
11 ____Centre Drill Set
12 ____Draw Bar & Collets
13 ____Hard Centre No. 3MT
14 ____Soft Centre No. 3MT
15 ____Revolving Centre No. 3MT
16 Metric Conversion Quadrant
17 ____Metric Conversion Wheels
18 ____Heavy Duty Faceplate
19 ____Set of Carriers
20 Spindle Nose Chuck & Collets
21 ____Thread Dial Indicator
22 ____Tailstock Taper Turning Unit
23 External Threading Toolholder
24 ____Parting off Toolholder
25 ____104 Boring Bar holder
26 ____15H Boring Bar holder
27 ____4-way Toolpost
28 ____2-way Toolpost
29 ____1-way Toolpost
30 American Type Toolpost
31 ____Rear Toolpost
32 Set Size 'O' Toolholders
33 ____O.KHA Knurling Tool

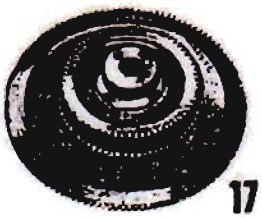


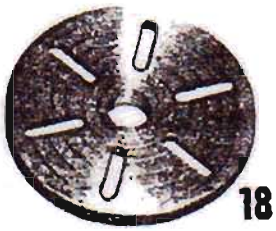


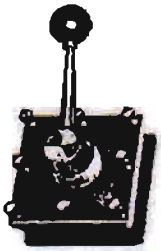


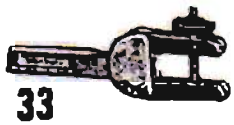




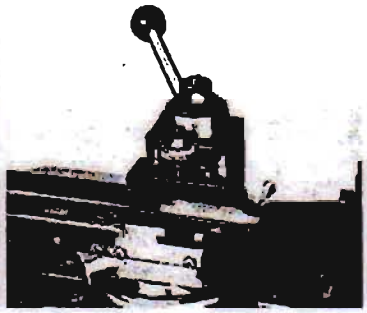




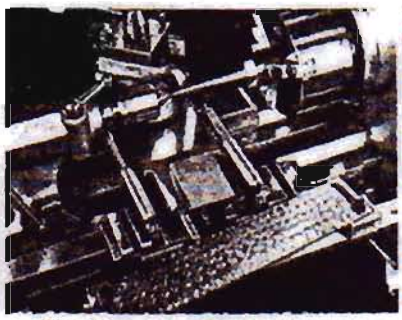




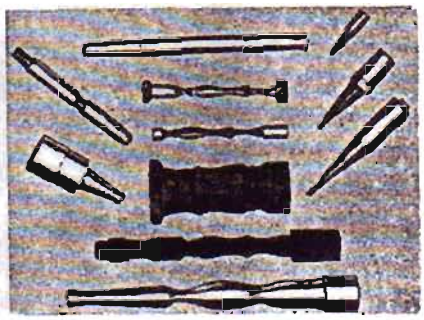
Vertical Slide and Milling Attachment



Rear view of quick change toolpost in position with one of the many toolholders available.



Taper Turning and Copying attachment (EXTRA)



Typical examples of work produced.

LUBRICATION AND MAINTENANCE

Once the lathe is cleaned and set up it is essential to ensure all bearings and surfaces are correctly lubricated with good quality oil or grease. The lathe does not require too much oil/grease; this causes dirt to accumulate, impedes the running and causes overheating, particularly on spindle bearings.

OILING CHART

1. Headstock Spindle Bearings are Adjustable Timken Taper – use good quality grease. DO NOT OVERGREASE.
2. Back Gear – oil with gun regularly through nipple below headstock spindle.
3. Selector Levers – Oil monthly.
4. Headstock Sliding Gear – apply a little oil monthly through spring loaded oilers in Headstock.
5. Reverse Gear Bracket and Gears – oil daily.
6. Leadscrew Brackets – oil daily.
7. Countershaft – no attention required – grease prepacked at Works.
8. Tailstock – oil barrel daily, clean and lightly oil square thread.
9. Leadscrew and half nuts – oil regularly when in use – keep clean.
10. Apron – oil two positions daily.
11. Carriage 'V' Way, Dovetails and Bushes – clean and oil daily.
12. Motor Bearings – oil annually.

Recommended	Lubricants	–	Esso Oil Company or equivalent
	Grease	–	Firmax 2 or equivalent
	Oil	–	Coray 45 or equivalent

MISCELLANEOUS EQUIPMENT. A full range of accessories is available and is shown on the enclosed list i.e. faceplates, centres, toolholders, carriers, drill sets etc., as well as other items of equipment which are available on request. Special prices can be quoted for alternative or additional items of non-standard design.

SERIAL NUMBER. Always quote the code and serial number of the machine when entering into any correspondence or when ordering spares. This number will be found clearly marked on the plate fitted to the bed foot. If electrical fault, state phase. Should any difficulty be experienced with our 'Viceroy' lathes or any of our other products – 'Home or Overseas' – please bring the matter to the attention of your supplier or direct to our 'Service after Sales' Department, who will treat the complaints or queries with the necessary URGENCY.

We hope these instructions have been helpful and will help to ensure that your 'Viceroy' lathe will give you many years of efficient service.

In conclusion, remember that we are at your SERVICE, whether in an ADVISORY or TECHNICAL capacity – please do not hesitate to contact us.

POINTS WORTH NOTING

ALWAYS clean the lathe or any other machine tool and equipment after use, or each day. Lightly oil all machined surfaces and equipment before leaving for any time, to prevent rusting after being handled.

Always OIL AND GREASE REGULARLY WHERE INDICATED.

Always BE SURE THE DRIVING BELTS ARE AT CORRECT TENSION.

Always BE SURE THAT THE CHANGE WHEELS ARE CORRECTLY IN MESH. IF TOO TIGHT IN MESH YOU RISK DAMAGE TO THE GEAR WHEELS.

Always ADJUST THE JIB STRIPS AT REGULAR INTERVALS.

REGULAR MAINTENANCE OF YOUR LATHE OR ANY OTHER MACHINE TOOL ENSURES TROUBLE FREE RUNNING, ACCURACY AND FINISH.

NEVER

PUT SPANNERS, TOOLS ETC., ON THE BEDWAYS.

KNURL WITHOUT OILING WORK PIECE OR KNURLS.

USE CENTRES WHICH ARE BADLY WORN.

INSERT CENTRES IN HOLLOW SPINDLES WITHOUT CLEANING CENTRES OR SPINDLES.

CENTRE DRILL WITHOUT FACING THE WORK PIECE.

TIGHTEN TOOLPOST COMPOUND SLIDE AND TAILSTOCK LOCKING SCREWS TIGHTER THAN REQUIRED.

TRANSFER CONCENTRIC CHUCKS FROM ONE LATHE TO ANOTHER AND EXPECT ACCURACY.

LEAVE THE CHUCK KEY IN THE CHUCK AND LEAVE THE LATHE UNATTENDED.

TRY TO ENGAGE THE HALF NUT WHILST THE LEAD SCREW IS STOPPED.

FILE OR POLISH WORK NEAR THE CHUCK JAWS WITHOUT ROLLING UP YOUR SLEEVES.

PUT FINGERS IN A BORE TO FEEL THE SMOOTHNESS OF THE FINISH WHILST THE CHUCK IS REVOLVING.

HOME MARKET

COMPREHENSIVE SERVICE AFTER SALES POLICY INCLUDES:—

1. Delivery by our own transport, fitted with off-loading crane and positioning (not fastening down or electrical installation) of the machine in the room at a convenient time pre-arranged with the Headmaster or Contractor on site.

2. Testing and demonstration of the machine when under power to the satisfaction of the user by the D.M.T. Service Engineer, or Technical Representative.

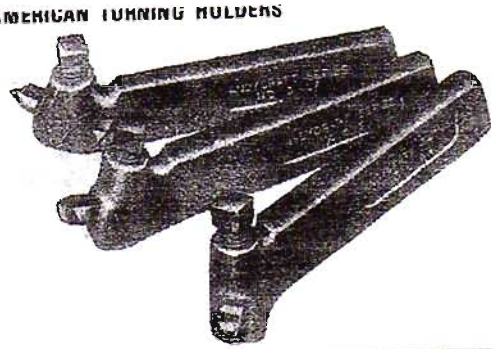
3. Periodic inspection by our 'After Sales Service' Engineers, or Representative during the twelve months' guarantee, which also includes materials or workmanship should they prove to be design or manufacturing faults.

In conclusion, the D.M.T. Technical Advisory Service is at the users' disposal any time. Our concern is that the 'Viceroy' range of products should give a long and efficient service to the user.

EXPORT MARKET

Our Agents or Distributors would be pleased to co-operate on any problems. We would also welcome the opportunity of being of **SERVICE TO YOU** if required.

AMERICAN TURNING HOLDERS



Complete with H.S.S. Toolbit, H.T. Screw and Sq. Wrench.
For all lathes fitted with American type Tool-Posts.

SIZE	Straight, Right and Left Hand Size of Holder	Size of Cutter	Height base to point
00	$\frac{5}{16}$" × $\frac{3}{4}$" × 4½"	$\frac{3}{16}$"	$\frac{5}{8}$"
0*	$\frac{3}{8}$" × $\frac{7}{8}$" × 5"	$\frac{1}{4}$"	$\frac{3}{4}$"
1	$\frac{1}{2}$" × 1$\frac{1}{8}$" × 6"	$\frac{5}{16}$"	1$\frac{1}{16}$"
2	$\frac{5}{8}$" × 1$\frac{3}{8}$" × 7"	$\frac{3}{8}$"	1$\frac{1}{4}$"
3	1$\frac{1}{16}$" × 1$\frac{5}{8}$" × 8"	$\frac{7}{16}$"	1$\frac{1}{2}$"
4	$\frac{3}{4}$" × 1$\frac{3}{4}$" × 9"	$\frac{1}{2}$"	1$\frac{5}{8}$"

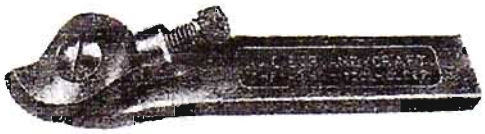
*Size "S.0" (LH, RH, S) available for small centre lathes 4-way tool posts. Sizes above Length 4"

No. 80 DOUBLE ENDED AMERICAN TYPE BORING BAR

Machined top and bottom square to sides, with milled boring bar seats. Two screws secure reversible drop-forged clamp assuring extreme rigidity.

No.	Size of Shank	Dia. of Boring Bars		Size of Bar Supplied	Size of Cutter	Height to Centre Line of Cutter
		Min.	Max.			
*80	$\frac{3}{8}$" × $\frac{7}{8}$"	$\frac{9}{16}$"	$\frac{2}{16}$"	$\frac{9}{16}$" × 6$\frac{3}{4}$"	$\frac{1}{4}$"	$\frac{13}{16}$"

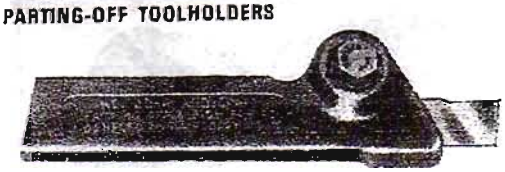
C50 R AMERICAN TYPE EXTERNAL THREAD CUTTING TOOL



The cam form cutter can be positively adjusted to suit centre height. The cutter is easily re-sharpened by grinding on the top face of the form—the tool-holder is then ready for use again. The cutters are made of High-speed Steel, hardened and ground. Each holder supplied with one Whitworth Form Cutter. can be supplied with Metric, B.A. or U.S.S. Form Cutters at extra cost.

Model No.	Height	Width	Length
*C50 R	$\frac{13}{16}$"	$\frac{3}{8}$"	4$\frac{15}{16}$"

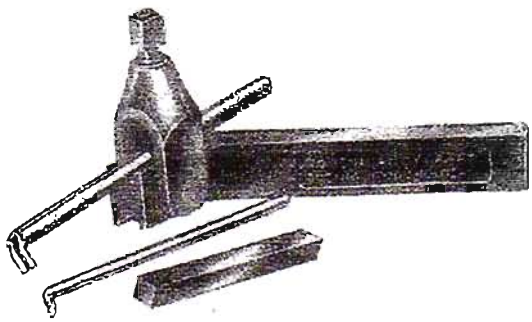
PARTING-OFF TOOLHOLDERS



Machined top and bottom square to sides. These holders are designed to accommodate both parting-off and side tool blades.

Straight	LH & RH	Size of Holder	Blade Size	Side Tool Size
N 20	N 30	$\frac{3}{8}$" × $\frac{15}{16}$"	$\frac{3}{32}$" × $\frac{5}{8}$"	$\frac{5}{32}$" × $\frac{5}{8}$"
N 21	N 31	$\frac{1}{2}$" × 1$\frac{3}{16}$"	$\frac{1}{8}$" × $\frac{3}{4}$"	$\frac{1}{4}$" × $\frac{3}{4}$"
N 22	N 32	$\frac{5}{8}$" × 1$\frac{3}{8}$"	$\frac{1}{8}$" × $\frac{7}{8}$"	$\frac{1}{4}$" × $\frac{7}{8}$"
N 24	N 34	$\frac{7}{8}$" × 1$\frac{3}{4}$"	$\frac{3}{16}$" × 1$\frac{1}{8}$"	$\frac{3}{8}$" × 1$\frac{1}{8}$"

No. 15H BORING TOOLHOLDER



Complete with one each Boring Bars $\frac{7}{32}$ in. and $\frac{1}{4}$ in. and extra long tool bit 3 in. x $\frac{1}{4}$ in. square. The Shank size is 5 in. x $\frac{3}{4}$ in. x $\frac{3}{8}$ in.. Suitable for all 4$\frac{1}{2}$ in. x 5 in. Centre Lathes fitted with American Tools Posts.

No.	Size of Shank	Dia. of Boring Bars		Size of Bar Supplied	Size of Cutter	Height to Centre Line of Cutter
		Min.	Max.			
*80	$\frac{3}{8}$" × $\frac{7}{8}$"	$\frac{9}{16}$"	$\frac{3}{16}$"	$\frac{9}{16}$" × 6$\frac{3}{4}$"	$\frac{1}{4}$"	$\frac{13}{16}$"

ENGLISH DROP-HEAD TOOLHOLDERS

SIZE	Straight, Right and Left Hand Size of Holder	Size of Cutter	Ht., base to point
D.00	$\frac{5}{16}$" × $\frac{9}{16}$" × 4$\frac{1}{2}$"	$\frac{3}{16}$"	$\frac{7}{16}$"
D.0	$\frac{9}{16}$" × $\frac{7}{8}$" × 5"	$\frac{1}{4}$"	$\frac{9}{16}$"
D.1	$\frac{5}{8}$" × $\frac{7}{8}$" × 6"	$\frac{5}{16}$"	$\frac{13}{16}$"
D.2	[illegible]	[illegible]	[illegible]

DOUBLE ENDED ENGLISH TYPE BORING BAR

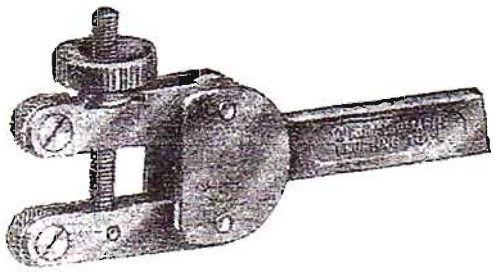
SIZE	Size of Bar	Cutter Size	Size of Block	Ht., Rest to Point
103	$\frac{3}{8}$" × 4$\frac{1}{2}$"	$\frac{1}{8}$" rd.	$\frac{1}{2}$" × 2$\frac{1}{8}$"	$\frac{5}{16}$"
104	$\frac{7}{16}$" × 5$\frac{1}{4}$"	$\frac{3}{16}$" sq.	$\frac{5}{8}$" × 2$\frac{1}{2}$"	1$\frac{3}{32}$"
105	$\frac{9}{16}$" × 6$\frac{3}{4}$"	$\frac{1}{4}$" sq.	$\frac{3}{4}$" × 3"	$\frac{1}{2}$"
106	$\frac{3}{4}$" × 9"	$\frac{5}{16}$" sq.	1" × 3$\frac{3}{4}$"	2$\frac{1}{32}$"
107	$\frac{15}{16}$" × 11$\frac{1}{4}$"	$\frac{3}{8}$" sq.	1$\frac{1}{4}$" × 4$\frac{1}{2}$"	2$\frac{3}{4}$"

Manufactured by the Makers of VICEROY LATHES. D.S.T. TOOLHOLDERS

are suitable for all AMERICAN TYPE TOOLPOSTS also *VARIOUS TOOLPOSTS FITTED TO VICEROY METAL TURNING LATHES AND OTHERS.*

The holders are drop forged from *NICKEL CHROME EN351 MATERIAL* case hardened and ACCURATELY MACHINED on all bearing surfaces. The tool-bit bore is broached to ensure square and accurate bearing when clamped in position, the finish is rust-proof zinc plating. All holders are packed in individual strong boxes, labelled for ease of identification, and complete with H.S.S. Tool-bit, Knurl, Cutters, Boring Bars and Wrench.

No. OKHA ADJUSTABLE KNURLING TOOL



Model	Size of Holder	KNURLS			
		Dia.	Width	Width of Cut	Bore
"0" KHA	$7\frac{1}{8}$" × $\frac{13}{16}$" × $\frac{3}{8}$"	$\frac{5}{8}$"	$\frac{5}{16}$"	$\frac{1}{4}$"	$\frac{1}{4}$"

10 STAR FEATURES

- ★ No strain transmitted to Headstock Bearings.
- ★ No strain transmitted to Slides.
- ★ No strain transmitted to Workpiece.
- ★ Adjustable from 0 to 25 mm – 0 to 1 in.
- ★ Adjustable arms are self-centring.
- ★ Adjustable whilst workpiece is revolving.
- ★ Suitable for LIGHT or HEAVY DUTY Lathes.
- ★ Suitable for all materials.
- ★ Knurls easily interchangable.
- ★ Boxed complete with two Knurls. H.S.S. or C.S.

No. 1 UKH UNIVERSAL KNURLING TOOL HOLDER

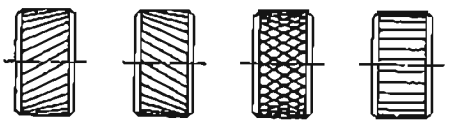
WITH REVOLVING HEAD

Machined top and bottom square to sides, with revolving head and three parts of spiral knurls. Boxed complete with 6 knurls.

Cast Steel Knurls,
High-Speed Steel Knurls
Straight and Checkered Knurls
BOXED COMPLETE WITH 6 KNURLS.

Model No.	Size of Holder	KNURLS			
		Dia.	Width	Width of Cut	Bore
1 UKH	$\frac{1}{2}$" × $1\frac{1}{8}$" × $6\frac{5}{8}$"	$\frac{7}{8}$"	$\frac{7}{8}$"	$\frac{5}{16}$"	$\frac{1}{4}$"

COARSE	MEDIUM	FINE
Pitch 1·422 mm, 0·056 in.	Pitch 0·787 mm, 0·031 in.	Pitch 0·559 mm, 0·022 in.



Left Hand—Right Hand—Checkered—Straight

Carbon Steel or H.S.S. Knurls Optional.

Size "0" KHA. $\frac{5}{8}$ in. dia.

SPIRAL				STRAIGHT		
KN1	Coarse	R.H.	30 teeth	KN37	Coarse	36 teeth
KN2	Coarse	L.H.	30 "	KN38	Medium	63 "
KN3	Medium	R.H.	55 "	KN39	Fine	88 "
KN4	Medium	L.H.	55 "	**CHECKERED**		
KN5	Fine	R.H.	76 "	KN73	Coarse	30 teeth
KN6	Fine	L.H.	76 "	KN74	Medium	55 "
				KN75	Fine	76 "

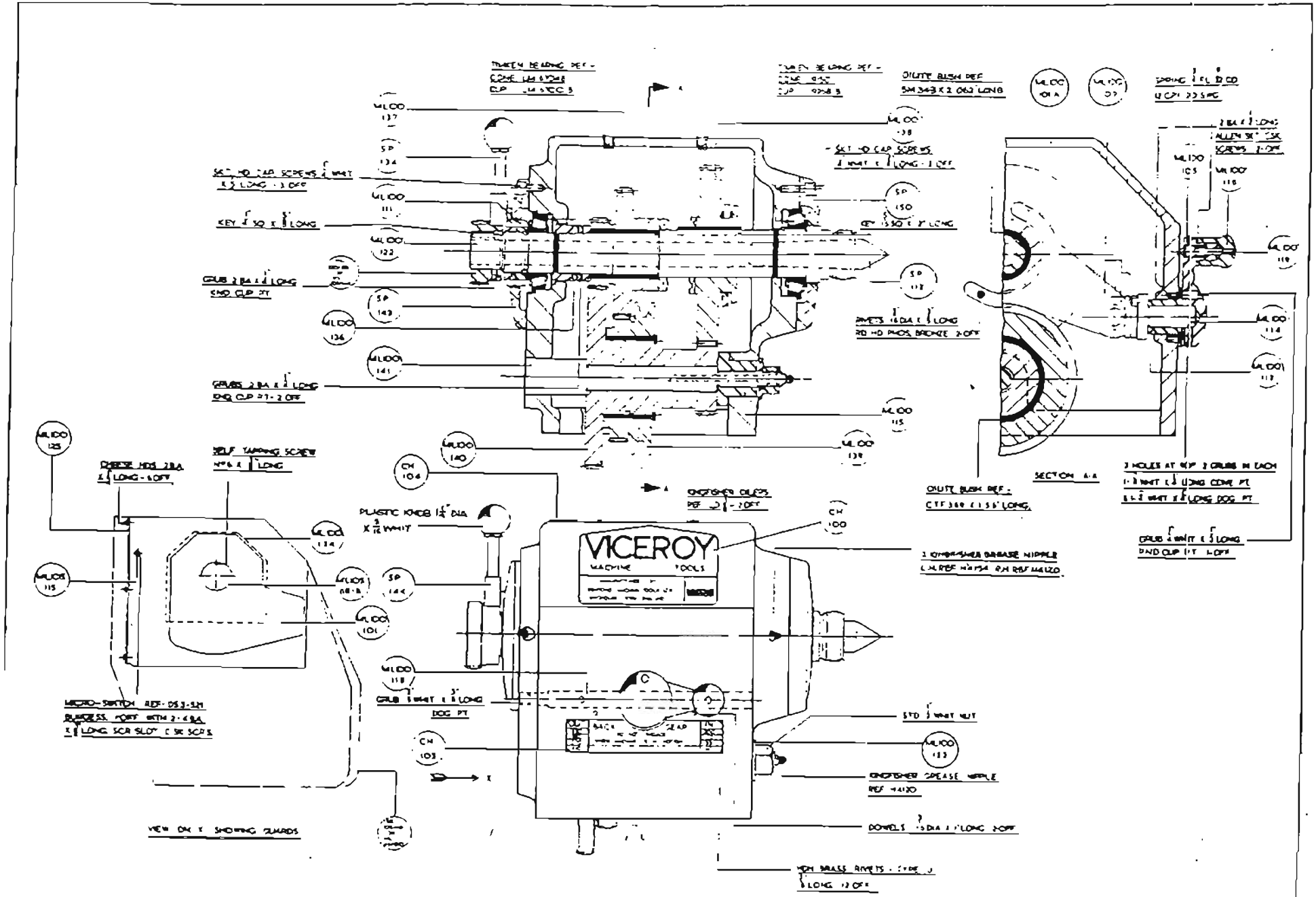
Size "1" UKH. $\frac{7}{8}$ in. dia.

SPIRAL				STRAIGHT		
KN7	Coarse	R.H.	36 teeth	KN40	Coarse	42 teeth
KN8	Coarse	L.H.	36 "	KN41	Medium	78 "
KN9	Medium	R.H.	66 "	KN42	Fine	107 "
KN10	Medium	L.H.	66 "	**CHECKERED**		
KN11	Fine	R.H.	92 "	KN76	Coarse	36 teeth
KN12	Fine	L.H.	92 "	KN77	Medium	66 "
				KN78	Fine	92 "

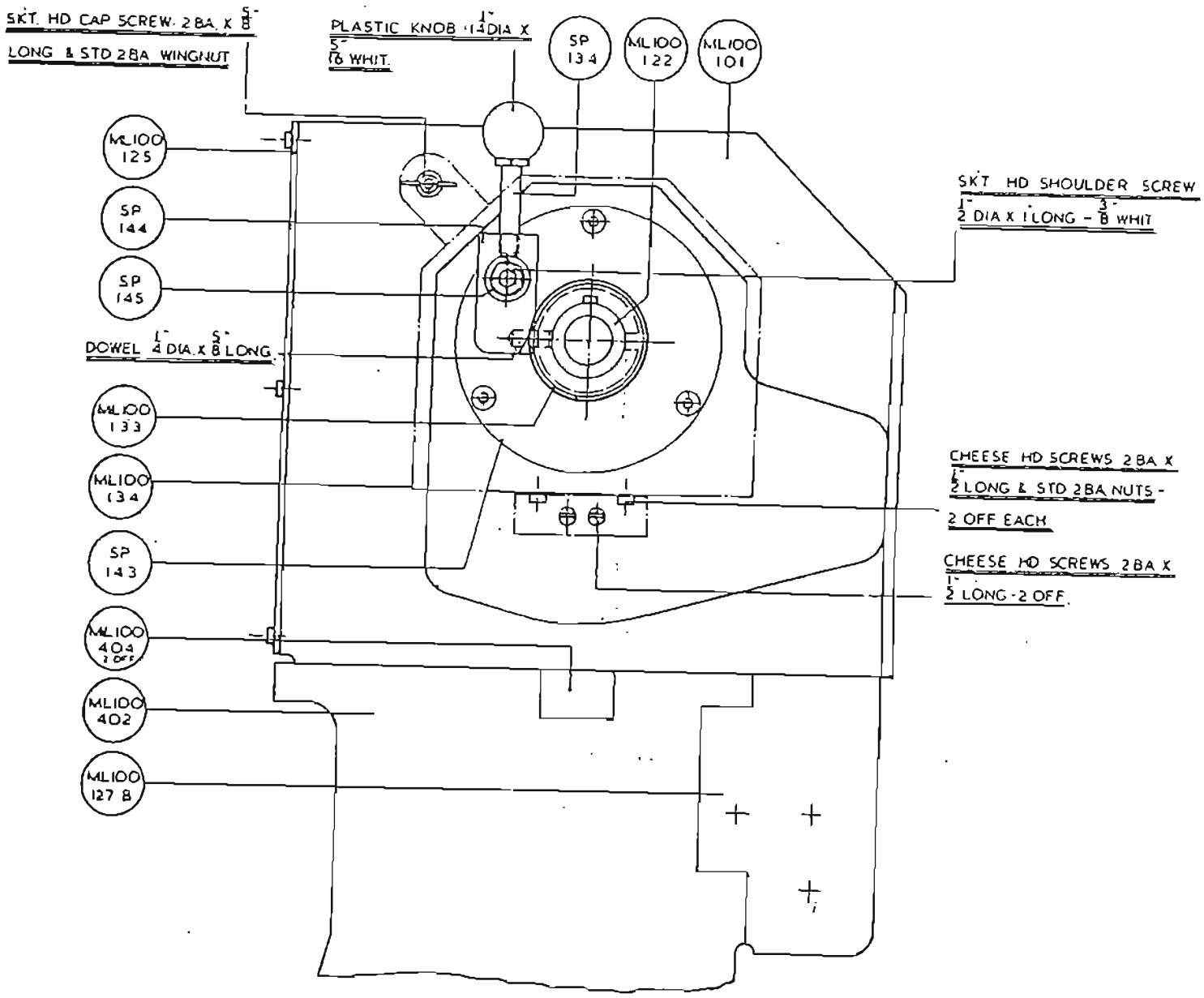
MANUFACTURED BY

DENFORD MACHINE TOOLS LTD

Brighouse Yorkshire, U.K. Tel. Brighouse 048-47-2264
Export Dept., 12/13 Robinson Row, Hull, England.
Tel. 0482 36304. Cables 'Viceroy' Hull, U.K.



T.D.S. 1/1 G.B. T.D.S. 1/1 P.C.S. T.D.S 1 T.D.S. 4 & T.D.S. 5 B.G. HEADSTOCK ARRANGEMENT



T.D.S. 4, 5 B.G. 5" 'VICEROY' METAL LATHE — SPINDLE LOCK ARRANGEMENT

TDS 1/1 PCS & TDS 1 LATHES

ENGLISH RANGE.

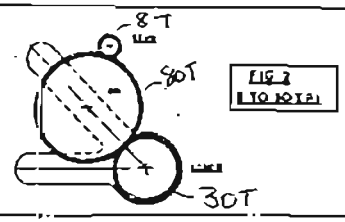


FIG 2
8 TO 80 TPI

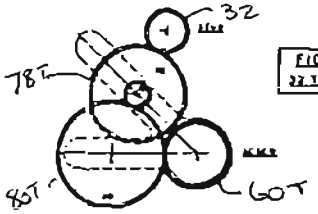


FIG 3
32 TO 80 TPI

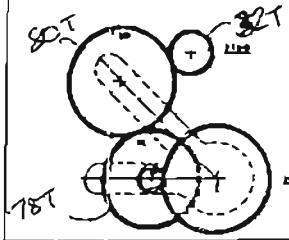
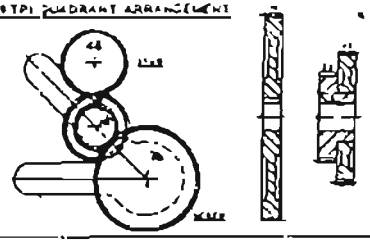
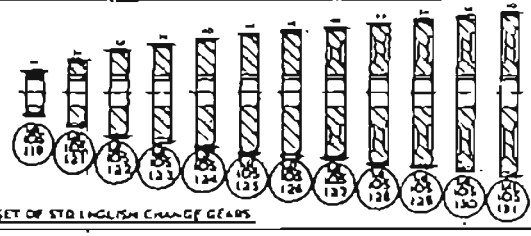


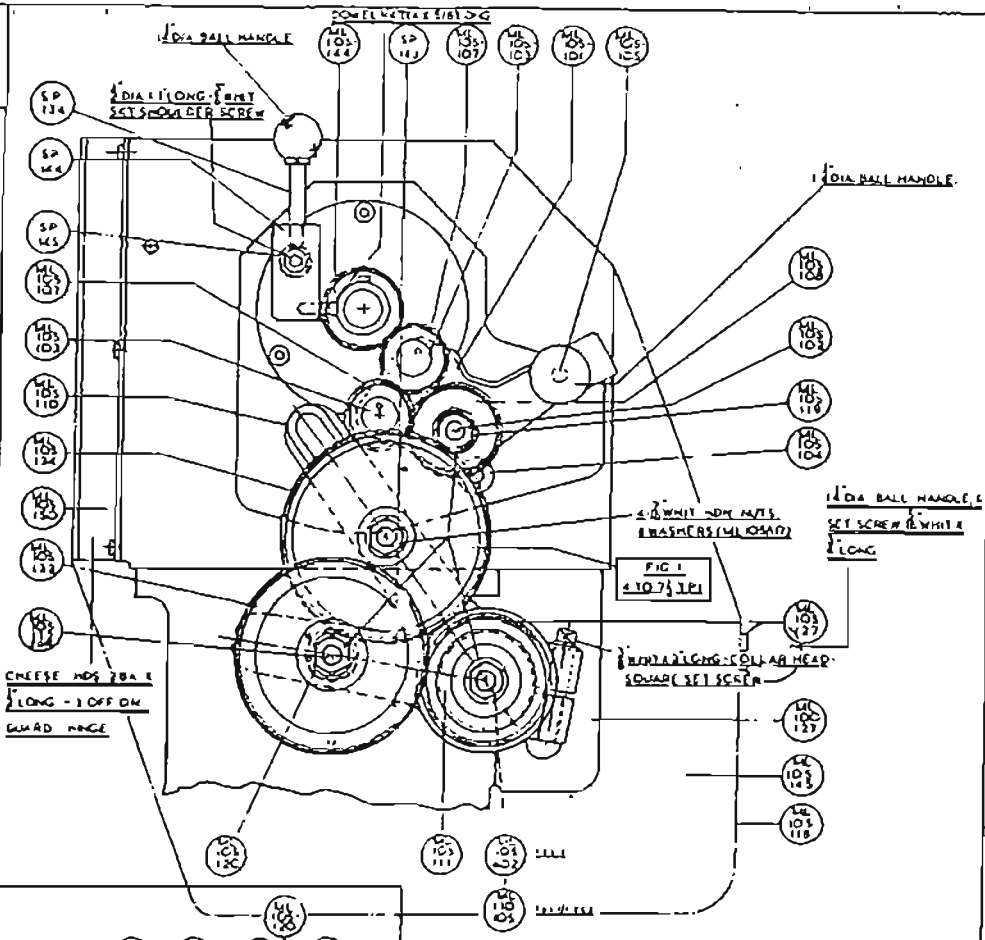
FIG 4 FINE FEEDS

10 TPI QUADRANT ARRANGEMENT

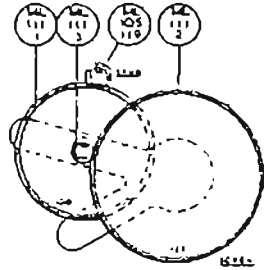




SET OF STD ENGLISH CHANGE GEARS



SPECIAL FINE FEED FOR TDS 1 ONLY.



400 TPI

FEED PER REV OF H'STOCK SPINDLE - 0.025" DECIMAL

TDS 1/1 PCS & TDS 1 LATHES

METRIC RANGE.

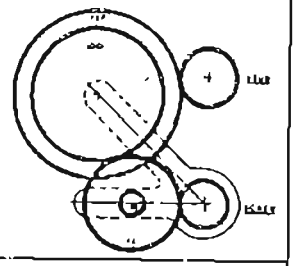


FIG 1
4 TO 20 TPI

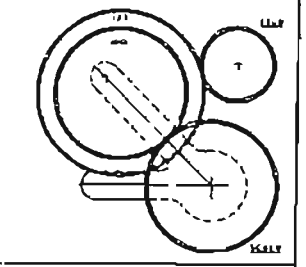


FIG 2
1.75 TO 10 TPI

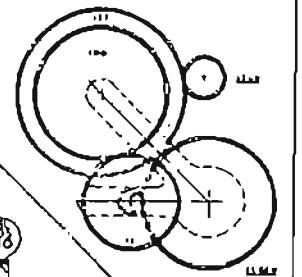
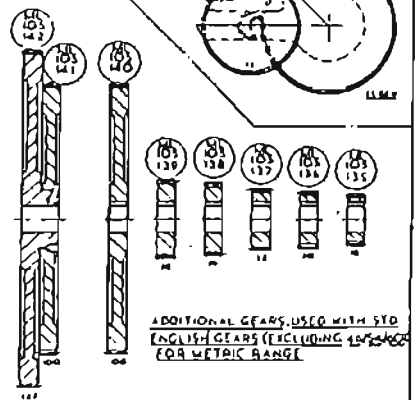


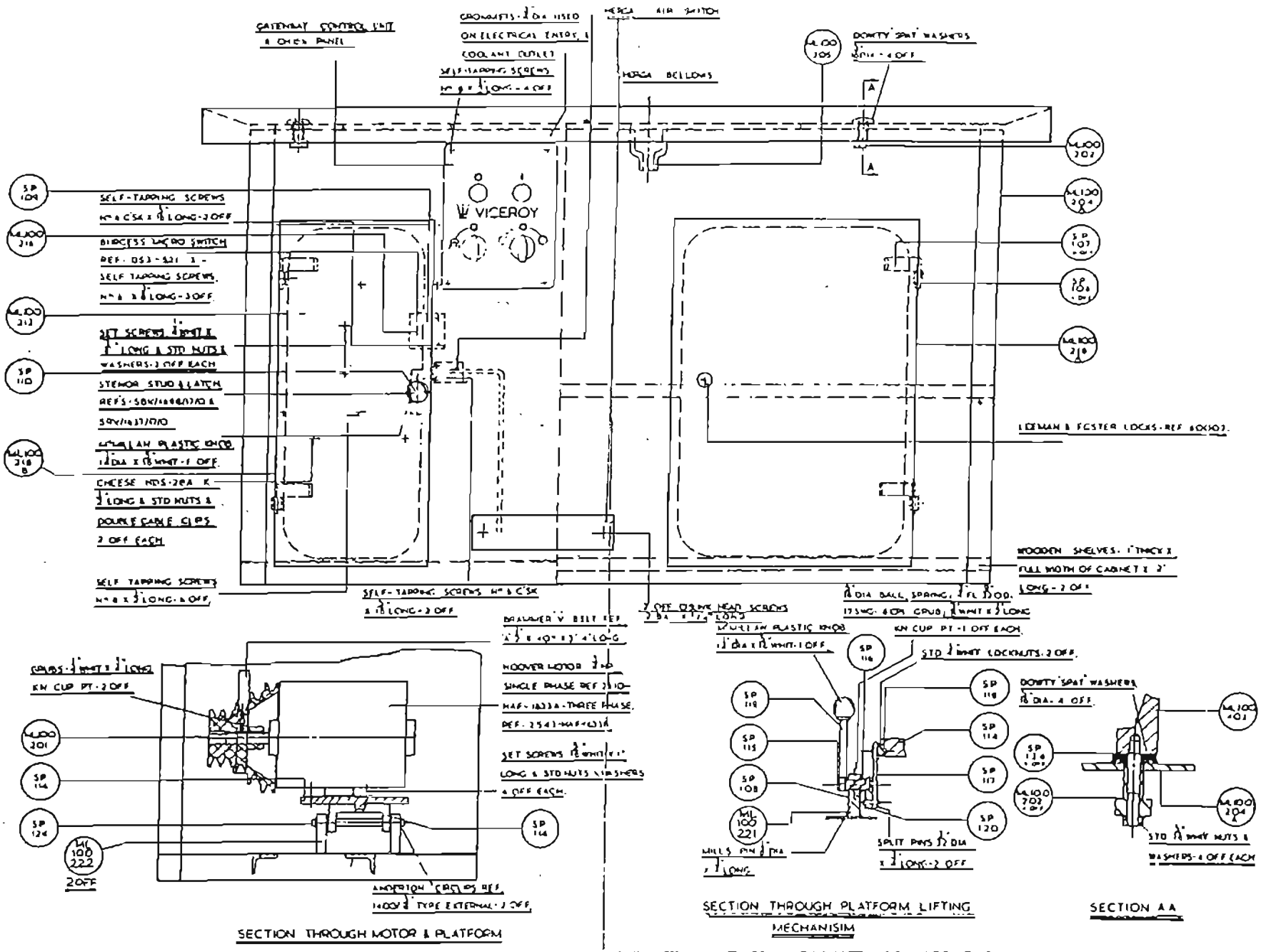
FIG 3
2.5 TO 20 TPI



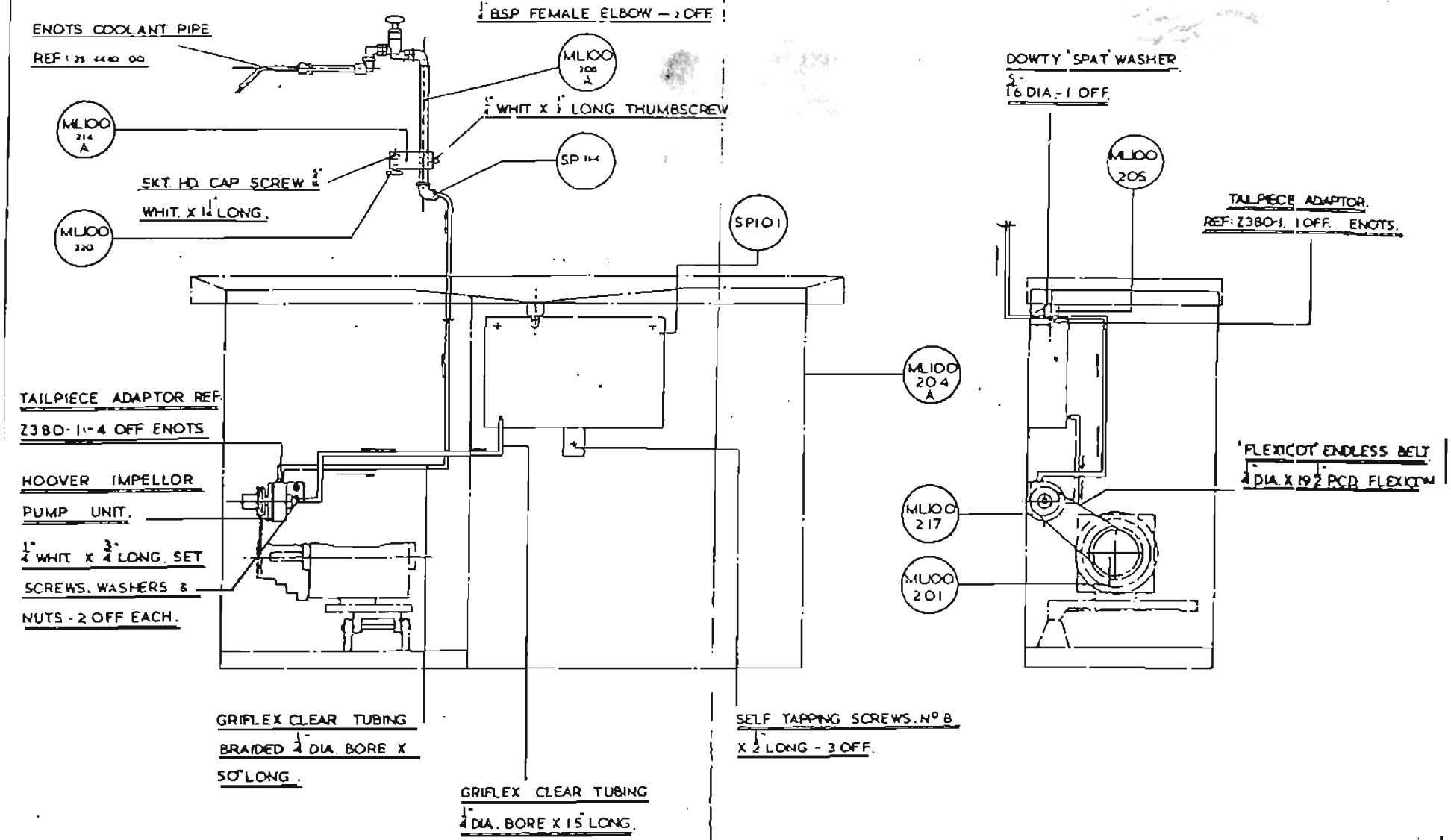
ADDITIONAL GEARS USED WITH STD ENGLISH GEARS (EXCLUDING [illegible]) FOR METRIC RANGE

5" VICEROY METAL LATHES - HEADSTOCK END DRIVE ARRANGEMENTS FOR T.D.S.1/1 PCS & T.D.S.1.

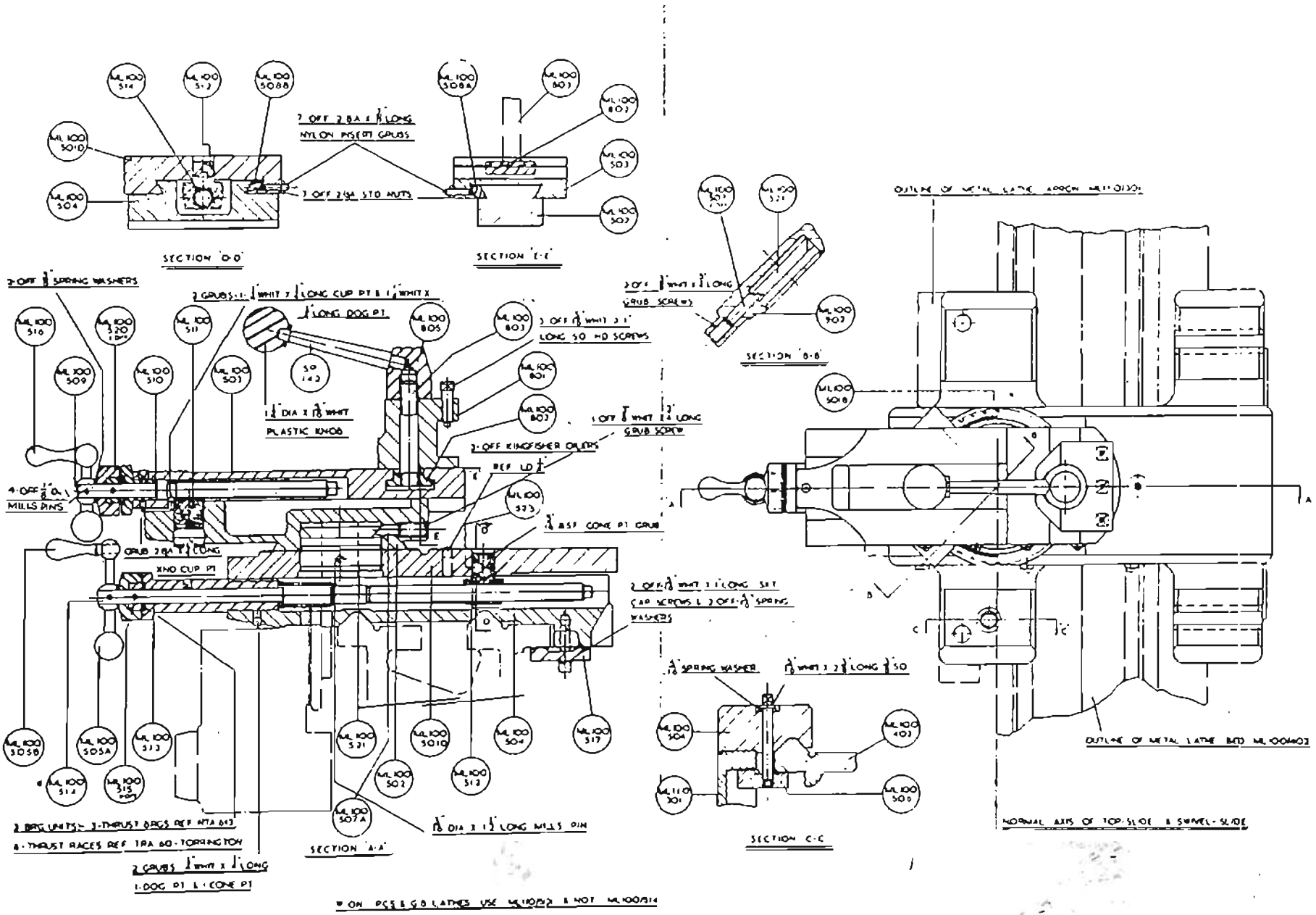
ML105/100A



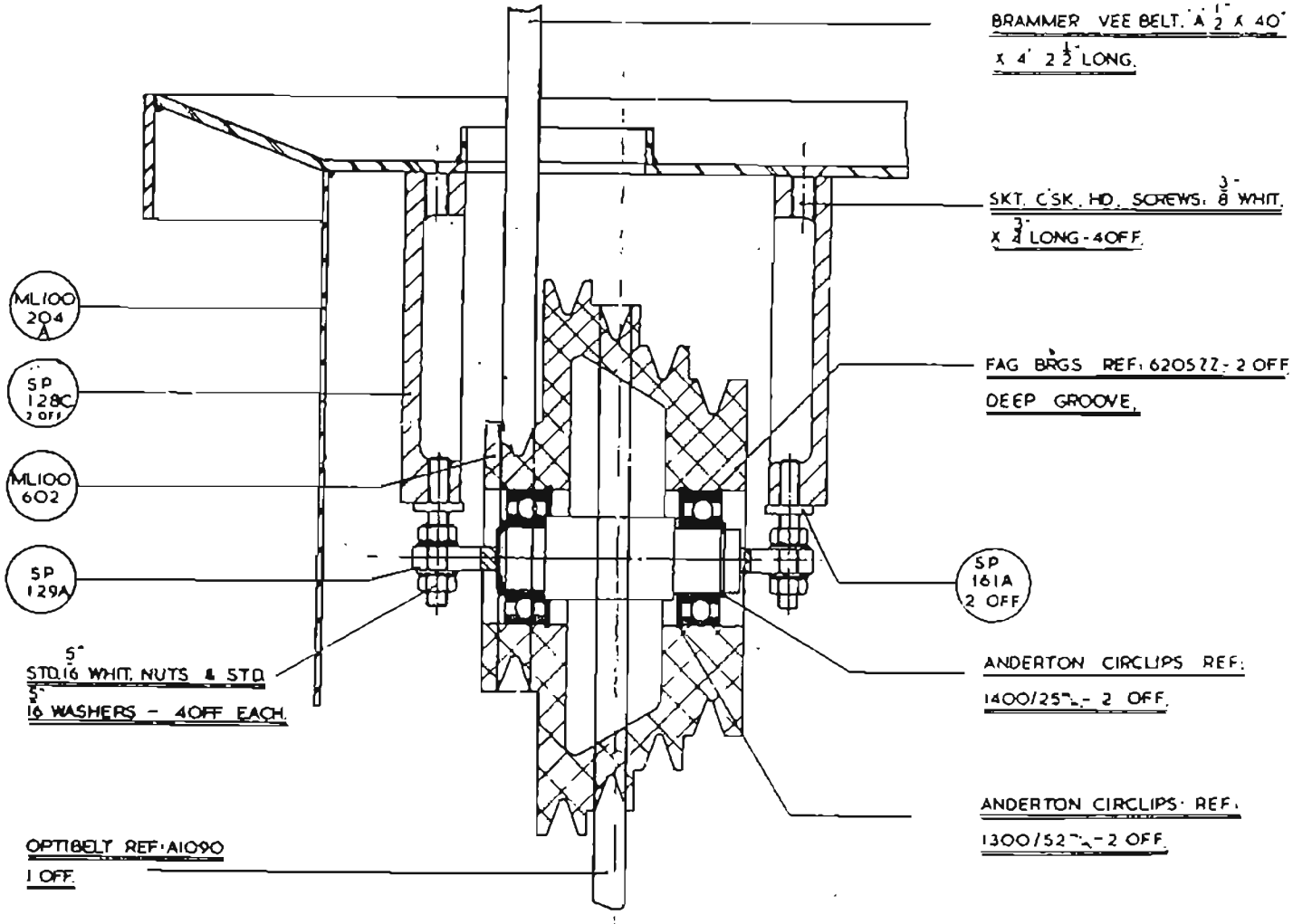
T.D.S. 1/1 G.B., 1/1 P.C.S., 1, 4 & 5 B.G. 5" 'VICEROY' METAL LATHES — CABINET ARRANGEMENT



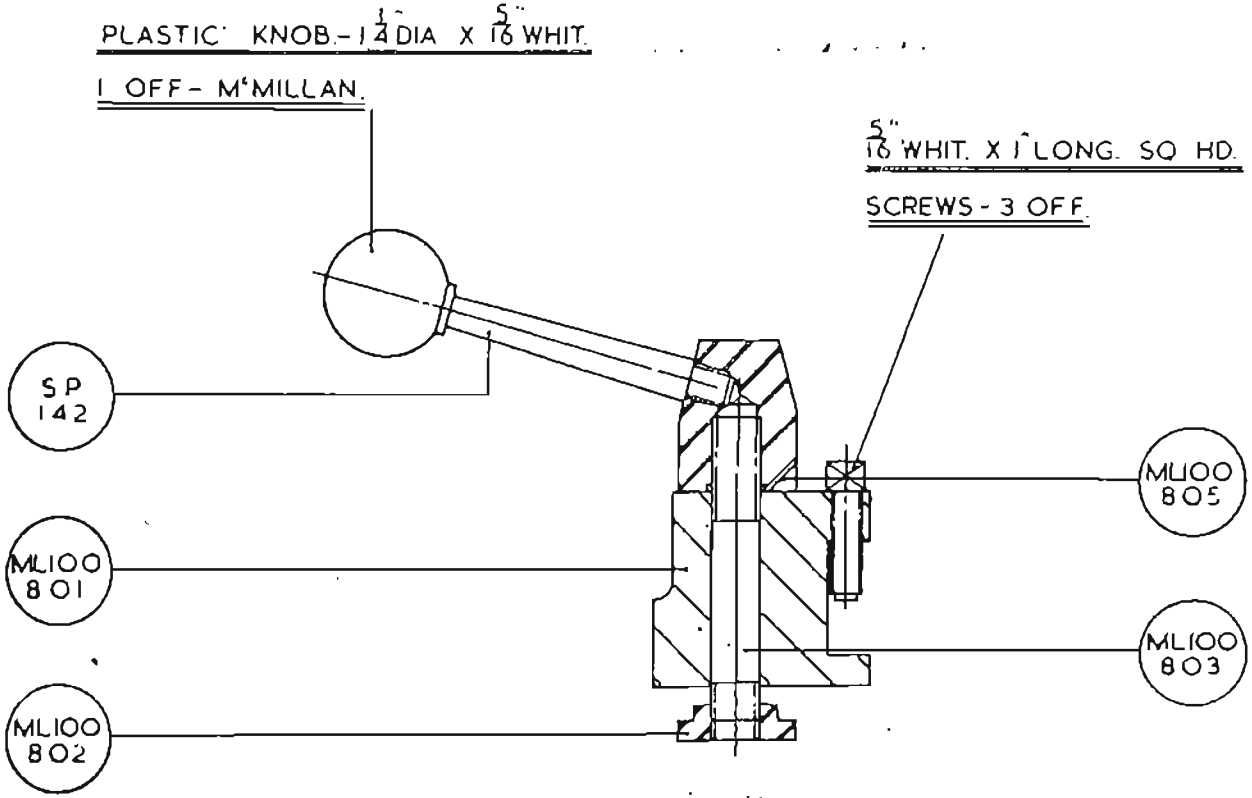
T.D.S. 1/1 G.B., T.D.S. 1/1 P.C.S., T.D.S. 1, T.D.S. 4 & 5 B.G.
5" 'VICEROY' METAL LATHES — COOLANT CIRCULATION ARRANGEMENT



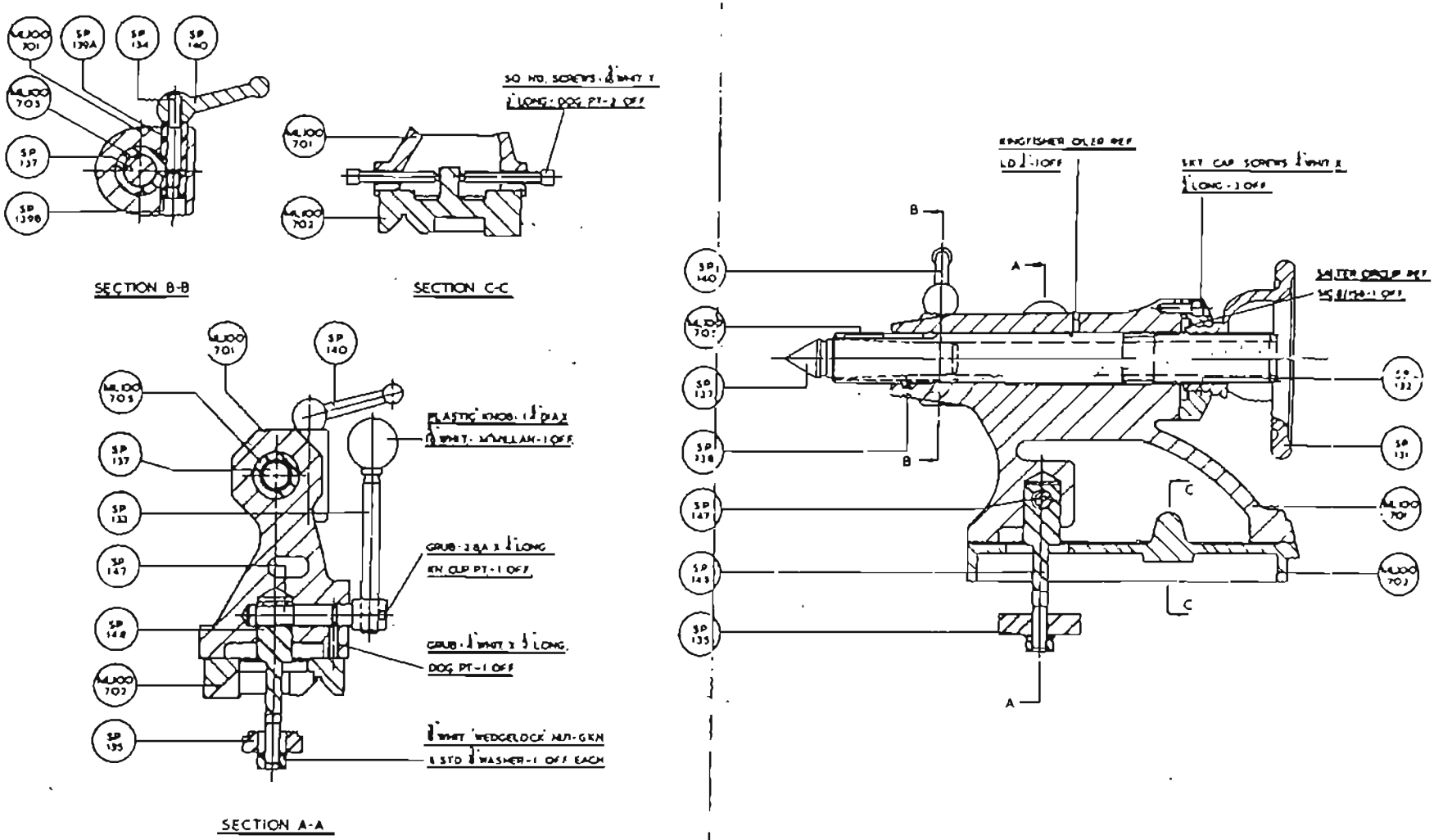
5" 'VICEROY' METAL LATHE SADDLE — TOP SLIDE — SWIVEL SLIDE — CROSS SLIDE ARRANGEMENT



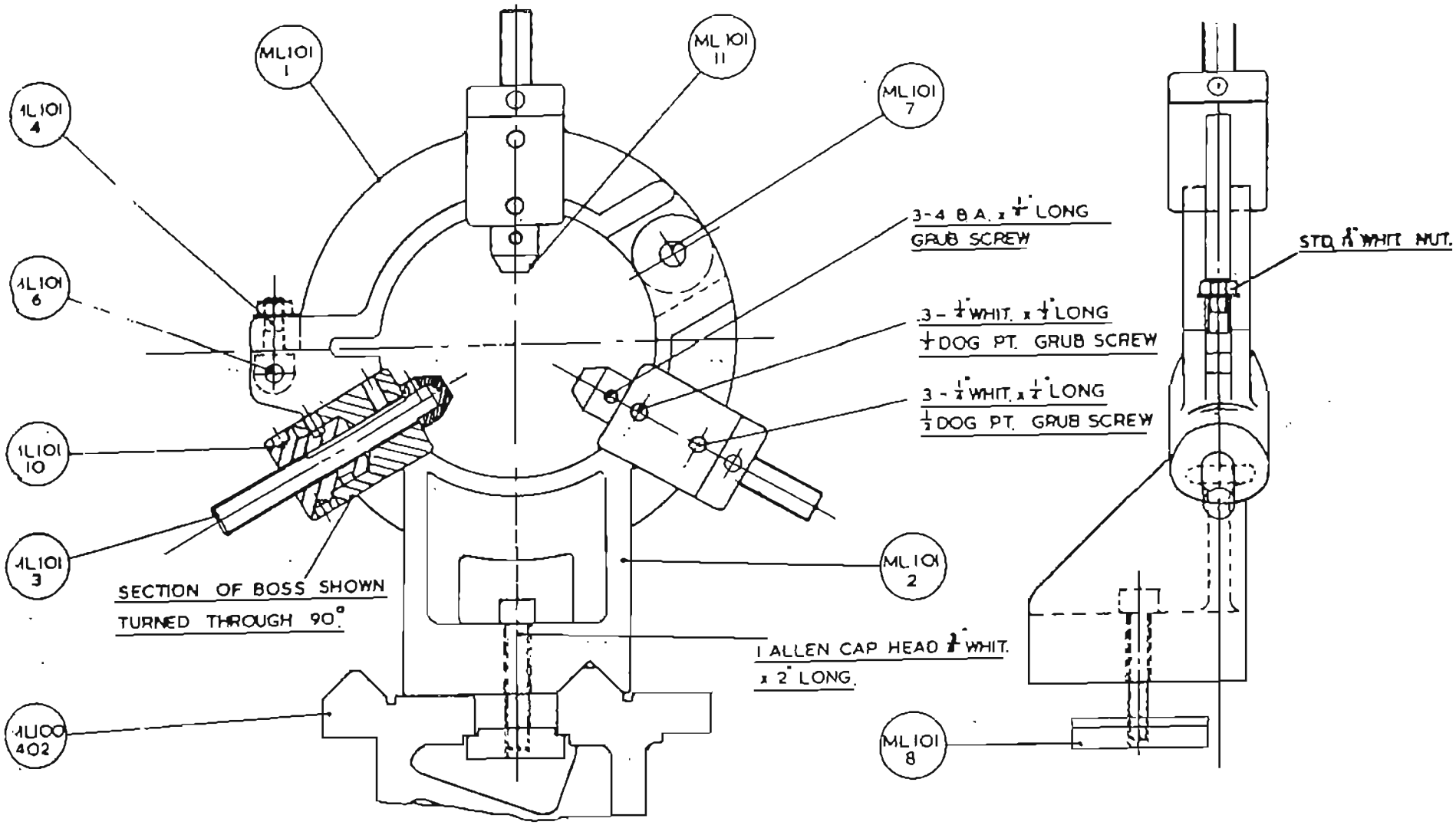
T.D.S. 1/1 G.B., T.D.S. 1/1 P.C.S., T.D.S. 1., T.D.S. 4 & 5 B.G.
5" 'VICEROY' METAL LATHES — COUNTERSHAFT ARRANGEMENT



T.D.S 1, 1, 1 P.C.S., 1/1 G.B., 4 & 5 B.G.
5" 'VICEROY' METAL LATHES — TOOLPOST ARRANGEMENT



5" 'VICEROY' G.B., P.C.S., SCREWCUTTING & PLAIN METAL LATHES — TAILSTOCK ARRANGEMENT

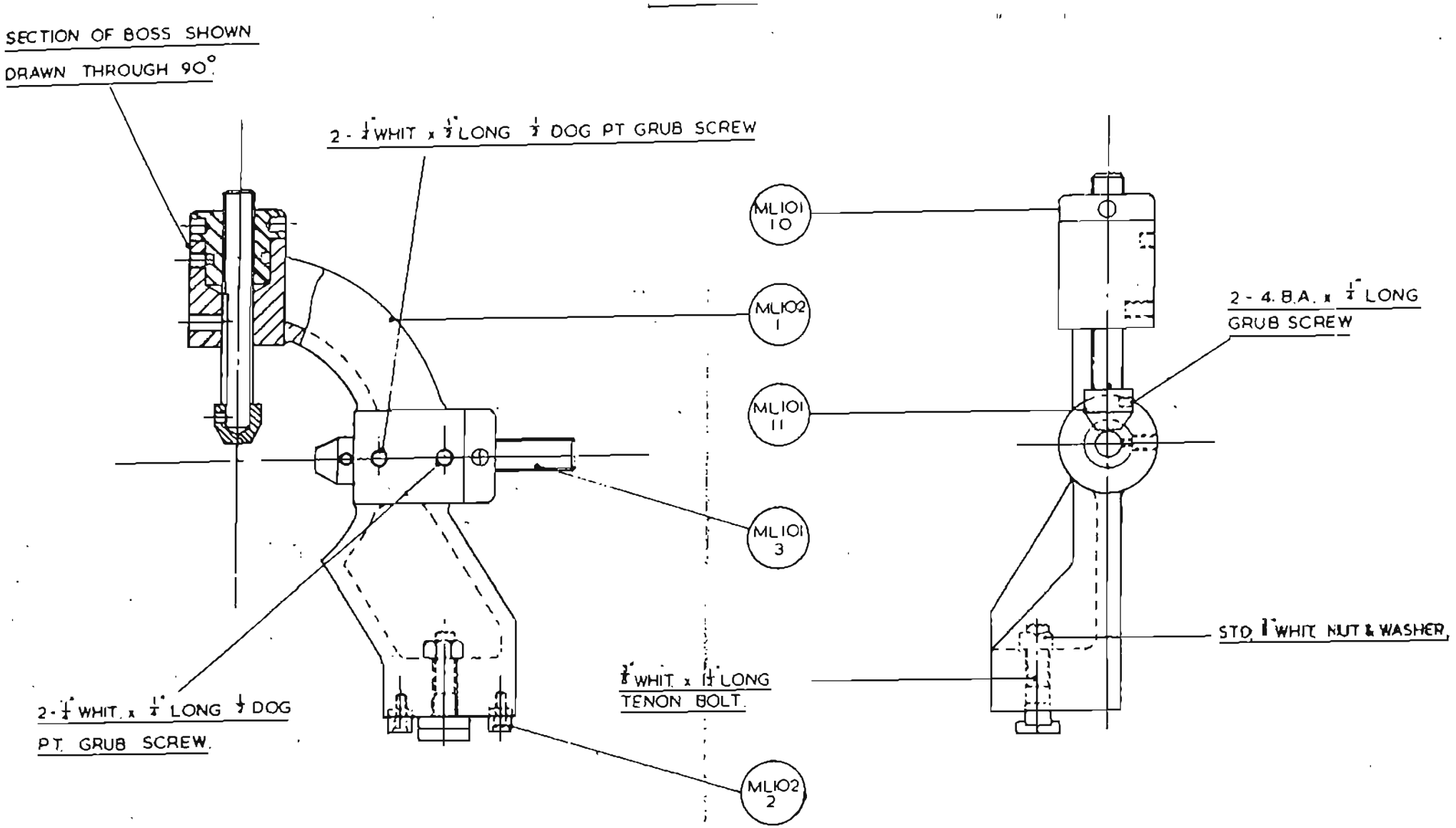


IF IN DOUBT ASK.

VICEROY METAL TURNING LATHE. FIXED STEADY ARRANGEMENT.

DENFORD MACHINE TOOLS LTD.
(INC.) DENFORD SMALL TOOLS (SHOP) LTD.
BIRSTALL, YORKSHIRE

DRAWN M. M. SOWDEN
CHECKED
PASSED
DATE 29-7-64
SHEET
SHEET SIZE
SCALE FULL
ML 101.


SECTION OF BOSS SHOWN
DRAWN THROUGH 90°
2 - ¼" WHIT x ½" LONG ¼ DOG PT GRUB SCREW
ML101 10
ML102 1
ML101 11
ML101 3
2 - 4. B.A. x ¼" LONG GRUB SCREW
STD. ½" WHIT. NUT & WASHER
2 - ¼" WHIT. x ½" LONG ¼ DOG PT. GRUB SCREW.
⅜" WHIT. x 1½" LONG TENON BOLT.
ML102 2

DENFORD MACHINE TOOLS LTD.

TDS.1/LS

SCREWCUTTING LATHE

HEADSTOCK PARTS LIST

PART NO.	DESCRIPTION	NO. OFF
ML.100/101 A	HEADSTOCK	1
105	HANDLE	1
106	5" CATCHPLATE	1
109A	GEAR SHIFTER FORK	1
109B	GEAR SHIFTER SLIDING BODY	1
109C	GEAR SHIFTER DOG INSERT	1
111	LOCKNUT	2
112	GEAR SHIFTER BUSH	1
114	ECCENTRIC	1
115	BACK GEAR SHAFT BUSH	1
116	GEAR CHANGE KNOB	1
118	GEAR SHIFTER SHAFT	1
119	LOCATING PIN	1
120	CATCHPLATE DRIVING PIN	1
122	MAIN SPINDLE	1
125	HEADSTOCK COVER PLATE	1
132	BACK GEAR WASHER	1
136	SPINDLE BUSH	1
137	DRIVEN CLUTCH GEAR	1
138	99T CLUTCH GEAR	1
139	68T Driven GeaR	1
140	BACK GEAR BARREL	1
141	BACK GEAR SHAFT	1
ML.105/144	38T SPINDLE GEAR	1
SP. 112	SOFT CENTRE (NO. 3 M.T.)	1
134	LOCKING STUD	1
137	HARD CENTRE (NO. 3 M.T.)	1
143	REAR NOSE CAP	1
144	SPINDLE LOCK BODY	1
145	SPINDLE LOCK COLLAR	1
150	FRONT NOSE CAP	1
151	RETAINING SCREW	1
SL.100/124A	MICRO SWITCH CAM	1
CH.100.A	NAMEPLATE	1
CH.103	BACK GEAR CHART	1
104	SPINDLE LOCK PLATE	1

-oOo-

DESCRIPTION.	MANUFACTURER	REF. NO.	NO.
BEARING CONE	TIMKEN	19150	1
CUP	"	19268	1
CONE	"	LM 67048	1
CUP	"	LM 67010	1
OILITE BUSH		1¼" x 1½"x1"	1
" "		1¼" x 1½" x 1¼" long	1
" "		2¼"x2⅜"x1½" long	1
CIRCLIP	ANDERTON	1400-2¼	1
OILER	KINGFISHER	L.D.⅜"	2
GREASE NIPPLE	"	H4120	1
"	"	"	2
SPRING		¾F.L.9/32 O.D.	

TDS.1/LS SCREWCUTTING LATHE

CABINET AND GUARDS PARTS LIST

PART NO.	DESCRIPTION	NO.
ML.100/201	MOTOR PULLEY	1
204A	CABINET (STD.)	1
204B	CABINET (LONG)	1
207	CABINET FOOT	3
218A	CABINET DOOR R.H.	1
218B	CABINET DOOR L.H.	1
219A	COOLANT DRAIN GUARD	1
221	CONNECTION PIN SUPPORT	1
222	PIVOT PIN SUPPORT	2
223	MOTOR ADJUSTMENT STOP	1
225	1 PHASE, PLATFORM STEADY	1
ML.105/118D	END DRIVE GUARD	1
MVS.100/148	CHUCK GUARD	1
149	CHUCK GUARD WINDOW	1
150	CHUCK GUARD ROD	1
MVS.115/971	END DRIVE HANDLE	1
BVS.100/205	DRAIN PLUG	1
ML. 124A	SPLASH GUARD (STD.)	1
ML. 124B	SPLASH GUARD (LONG)	1
SP 106	HINGE BUSH	4
SP 107	DOOR HINGE	4
SP 108	LINK PIN	4
SP 114	MOTOR PLATFORM	1
SP 115	CONNECTION PIN	1
SP 116	WASHER	1
SP 117	SWING BOLT	1
SP 118	SWIVEL SCREW	1
SP 119	HANDLE	1
SP 120	LINK	1
SP 124	PIVOT PIN	1
SP 183	DOOR PLUNGER	1
SP 185	MICRO SWITCH CAM	1
SP.197	BED MOUNTING PLATE	1
SP.199	BED MOUNTING PLATE	1

DESCRIPTION	MANUFACTURER	REF.NO.	NO.
DRIVE MOTOR	CROMPTON PARKINSON		1
MICRO SWITCH	BURGESS	KB5EQR2	1
STARTER BOX			
DOOR LOCK			
DOOR CATCH			
DOOR KNOB		$1\frac{1}{4}$"dia x 5/16" B.S.W.	2
STEEL BALL		5/16" DIA.	1
SPRING		$\frac{3}{4}$" F.L.9/32" O.D. 17SWG.18 CP1	

APRON PARTS LIST

PART NO.	DESCRIPTION	NO.
ML.100/117	RETAINING PLATE	1
304	PINION SHAFT	1
305A	APRON PINION	1
305B	APRON DRIVING GEAR	1
306	HANDWHEEL PINION	1
ML.105/301	LEADSCREW HALFNUTS (ENG.)	1 SET
301A	LEADSCREW HALFNUTS (METRIC)	1 SET
302	HALFNUT STUD	2
304	SCREWCUTTING LEVER BOSS	1
305	SCREWCUTTING LEVER CATCH SPRING	1
306	SCREWCUTTING LEVER CATCH	1
308	APRON BODY	

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DESCRIPTION	MANUFACTURER	REF. NO.	NO
HANDWHEEL	ELESA	VDO 125 FP+1	1
LEVER	ELESA	BL.366/10X 155	1

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TDS.1/LS SCREWCUTTING LATHE

BED AND LEADSCREW PARTS LIST

PART NO.	DESCRIPTION	NO.
ML.100/402	BED (STD.)	1
402A	BED (LONG)	1
403A	RACK (STD.)	1
403B	RACK (LONG)	1
404	BED TENON	2
405	HEADSTOCK STRIP	1
406	BED END STOP	1
ML.105/401	LEADSCREW BRACKET	1
402	LEADSCREW STD. ENG.	1
402B	-do- LONG ENG.	1
402C	-do- STD. METRIC	1
402D	-do- LNG. METRIC	1
403	LEADSCREW COLLAR	1
404	SPACING COLLAR	1
405	FEEDBOX	1
ML.110/415	QUADRANT BRACKET	1
SP 180	STUD	4

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DESCRIPTION	MANUFACTURER	REF. NO.	NO.
NUT		M8 NYLOC	4

/CONTINUED -

TDS.1/LS SCREWCUTTING LATHE

SADDLE PARTS LIST

PART NO.	DESCRIPTION	NO.
BVS.100/501	CROSS SLIDE LEADSCREW	1
502	SADDLE LEADSCREW BUSH	1
503	METRIC DIAL	1
503B	IMPERIAL DIAL	1
505	IMPERIAL/METRIC DIAL COLLAR	1
506	TOP SLIDE LEADSCREW	1
507	TOPSLIDE LEADSCREW BUSH	1
BVS.115/975A	SADDLE CLAMP SCREW	1
MVS.100/506	CROSS SLIDE	1
507	SWIVEL SLIDE	1
508	TOP SLIDE	1
513	REAR GIB STRIP	1
ML. 100/501B	~~GRADUATION RING~~	~~1~~
504	SADDLE	1
506A	LOCKING PAD	1
507	SWIVEL SLIDE LOCKING PIN	3
508	TOP SLIDE GIB STRIP	1
508B	CROSS SLIDE GIB STRIP	1
511B	GOP SLIDE FEED NUT	1
512D	CROSS SLIDE FEED NUT	1
515	BEARING COLLAR	1
521	CROSS SLIDE SPIGOT INSERT	
523	SLUG (CROSS SLIDE NUT)	1
523A	SLUG (TOP SLIDE NUT)	1

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DESCRIPTION	MANUFACTURER	REF. NO.	No.
CROSS SLIDE HANDWHEEL	ELESA	MD.80 FP	1
TOP SLIDE HANDWHEEL	ELESA	MD.63 FP	1
THRUST BEARINGS	TORRINGTON	NTA 613	3
THRUST PLATE	TORRINGTON	TRA 613	6
OILER	LUMATIC	B.04	3

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TAILSTOCK PARTS LIST

PART NO.	DESCRIPTION	NO.
MVS.100/701	TAILSTOCK BODY	1
703	END CAP	1
705E	BARREL (IMPERIAL)	1
705M	BARREL (METRIC)	1
707	NUT	1
710	NARREL CLAMPS	1 SET
711	EJECTOR PIN	1
712	CLAMP HANDLE STOP	1
BVS.100/706	TAILSTOCK SCREW	1
ML. 100/702A	TAILSTOCK SHOE	1
SP. 135	CLAMP PAD	1
SP. 147A	CLAMP ECCENTRIC	1
SP. 148	CLAMP PIN	1
SP. 171A	LOCKING STUD	1
SP.172	TEE KEY	1

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DESCRIPTION	MANUFACTURER	REF. NO.	NO.
HANDWHEEL	ELESA	VDO-125FP+1	1
LEVER ARM	ELESA	BL.366.10x155	1
CONTROL LEVER	ELESA	LBR 37/85/A10	1
OILER	LUMATIC	B04	2
GRUB SCREW		M8 x 45	2
NUT		M10 NYLOC	1

/CONTINUED -

TDS.1/LS SCREWCUTTING LATHE

END DRIVE & REVERSING BRACKET PARTS LIST METRIC

PART NO.	DESCRIPTION	NO
ML.105/101	REVERSING BRACKET	1
102	INTERMEDIATE STUD	1
104	REV. BRACKET STOP	1
107	28T REV. GEAR	2
108	38T STUD GEAR	1
110	QUADRANT	1
112	QUADRANT INTERMEDIATE STUD	2
113	SPACING BUSH	2
117	WASHER	3
119	16T GEAR	1
120	18T GEAR	2
121	24T GEAR	1
122	32T GEAR	2
124	40T GEAR	1
127	48T GEAR	1
132	72T GEAR	1
133	80T GEAR	1
136	20T GEAR	1
139	28T GEAR	1
140A	100T GEAR (WITH BOSS)	1
152	66T	1
MVS.105/109	IDLER STUD	2
BVS.115/993	LOCATING PIN PLUNGER	1
CH. 159	SCREW THREAD CHART (MET.)	

/CONTINUED -

TDS.1/LS SCREWCUTTING LATHE

END DRIVE & REVERSING BRACKET IMPERIAL

PART NO.	DESCRIPTION	NO
ML.105/101	REVERSING BRACKET	1
102	INTERMEDIATE STUD	1
104	REV. BRACKET STOP	1
107	28T. REV. GEAR	2
108	38T STUD GEAR	1
110	QUADRANT	1
112	QUADRANT INTERMEDIATE STUD	2
113	SPACING BUSH	2
117	WASHER	3
119	16T GEAR	1
120	18T GEAR	2
121	24T GEAR	1
122	32T GEAR	2
123	36T GEAR	1
124	40T GEAR	1
125	44T GEAR	1
126	46T GEAR	1
127	48T GEAR	1
128	52T GEAR	1
129	54T GEAR	1
130	56T GEAR	1
131	60T GEAR	1
132	72T GEAR	1
133	80T GEAR	1
140A	100T (WITH BOSS)	1
152	66T	1
MVS.105/109	IDLER STUD	2
BVS.115/993	LOCATING PIN PLUNGER	1
CH. 160	SCREW THREAD CHART (ENG.)	1

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