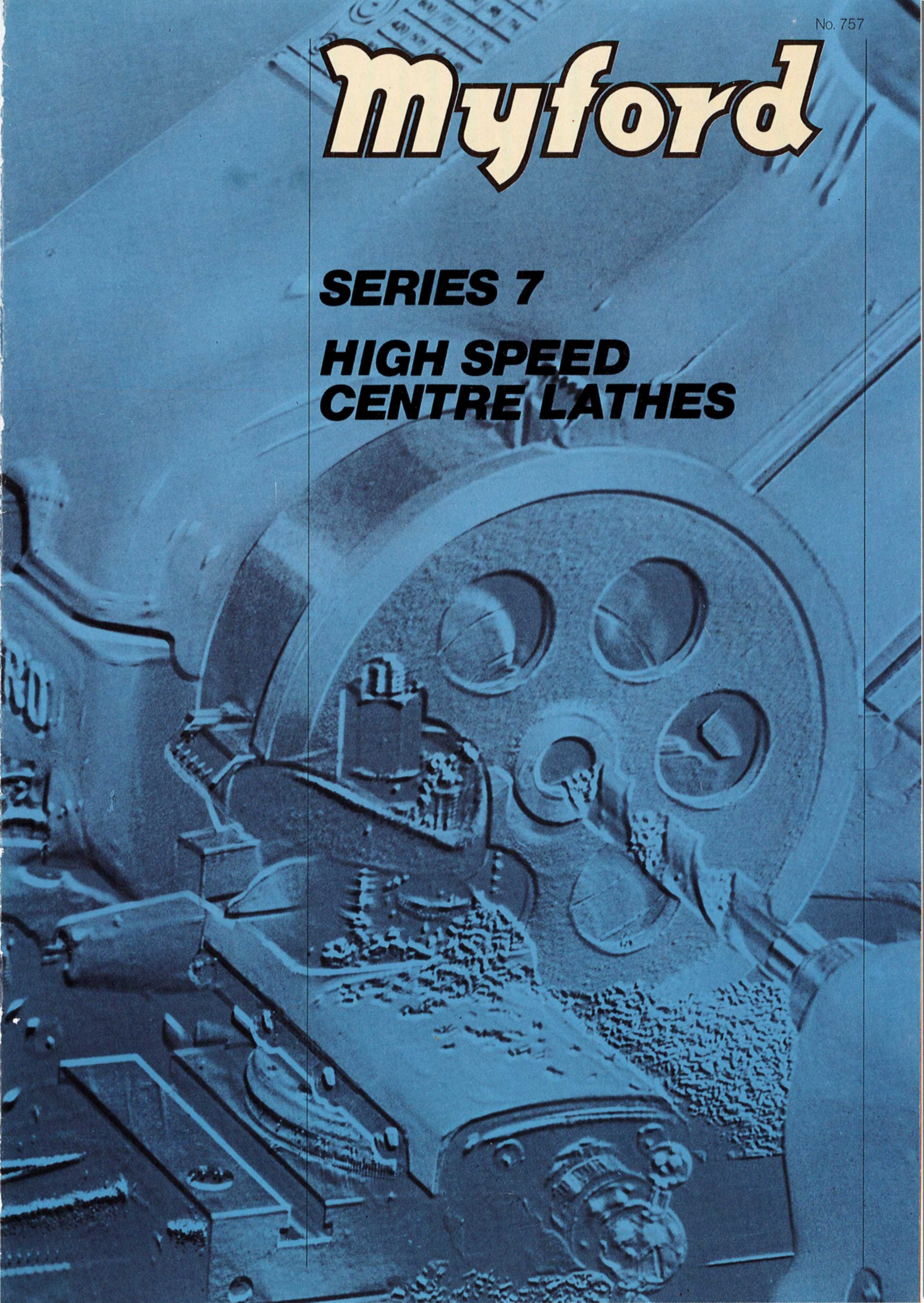


myford

SERIES 7

**HIGH SPEED
CENTRE LATHES**



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SERIES 7 HIGH SPEED CENTRE LATHES

10/048 ML7-R basic machine 19" (483mm) between centres
10/049 ML7-RB quick-change lathe 19" (483mm) between centres
10/050 ML7-R basic machine 31" (787mm) between centres
10/051 ML7-RB quick-change lathe 31" (787mm) between centres
10/038 Super 7 basic machine 19" (483mm) between centres
10/039 Super 7B quick-change lathe 19" (483mm) between centres
10/040 Super 7 basic machine 31" (787mm) between centres
10/041 Super 7B quick-change lathe 31" (787mm) between centres

Established throughout the world as a symbol of precision and performance, the Lathes of the Myford Series 7 range are used in production, repair and maintenance workshops, technical schools, scientific laboratories, also by serious model makers and hobbyists.

Many imitations are promoted but the genuine Myford product will remain the choice of the discerning.

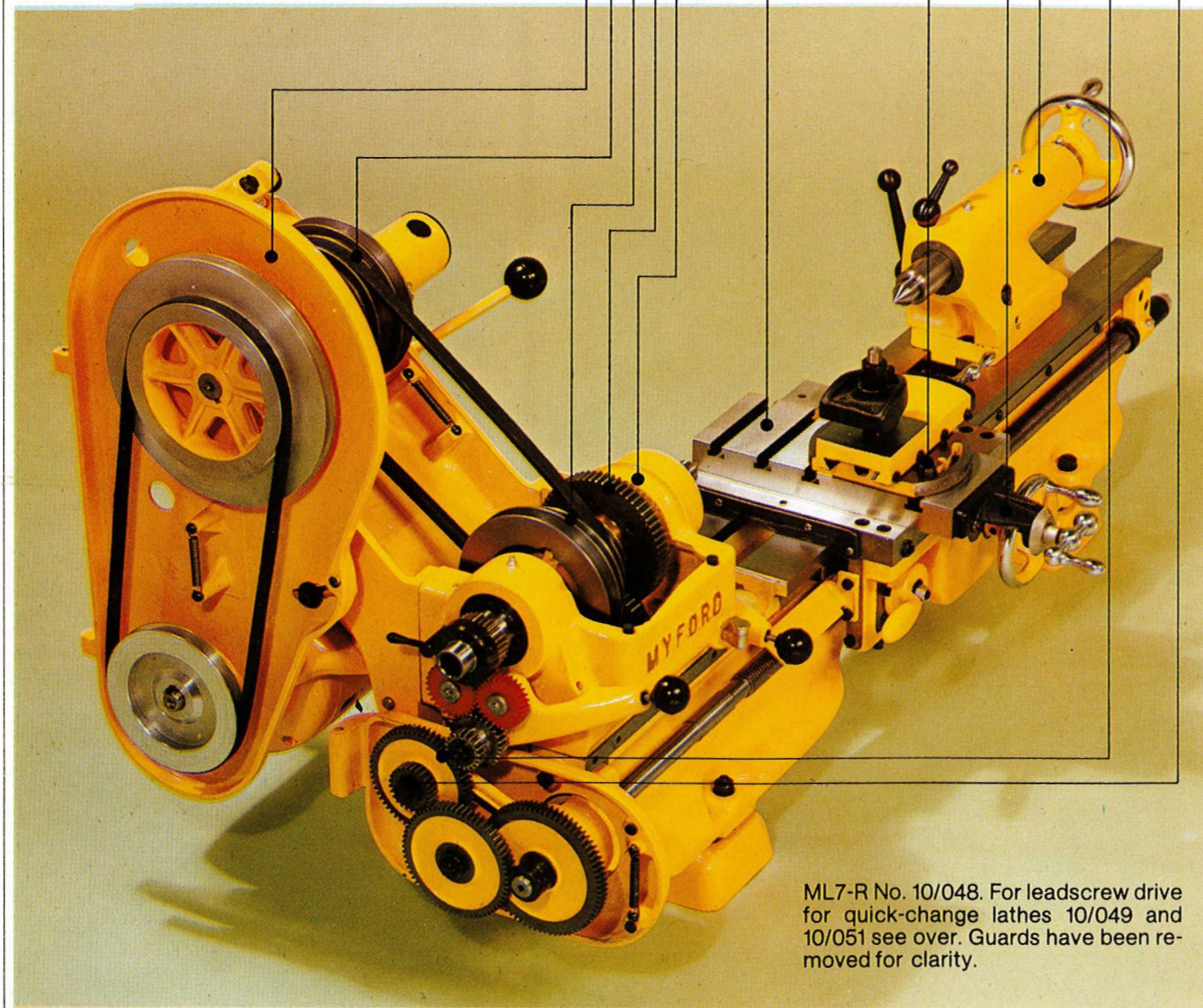
- Robust and safe for Training Schools – meeting today's demanding safety regulations, but neither crude or insensitive.
- Compact and economical of both space and capital outlay – meeting the demand of the less spacious hobby workshop, but neither "miniature" nor of the toy-like proportions which preclude serious commercial applications.
- Adaptable and capable of handling work pieces far in excess of the normal performance expectancy associated with this size of machine.
- Versatile and efficient, being supported by a comprehensive range of attachments and accessories which enable effective application to batch production or prototype work in a wide variety of functions.
- Accurate and durable - all lathe work can be executed with high precision and the general proportions of slides etc., together with hardened headstock spindle and the choice of optional hardened bedways etc., enable lasting accuracy.

Super 7B quick-change lathe No.
10/039.

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ML7-R HIGH SPEED CENTRE LATHE

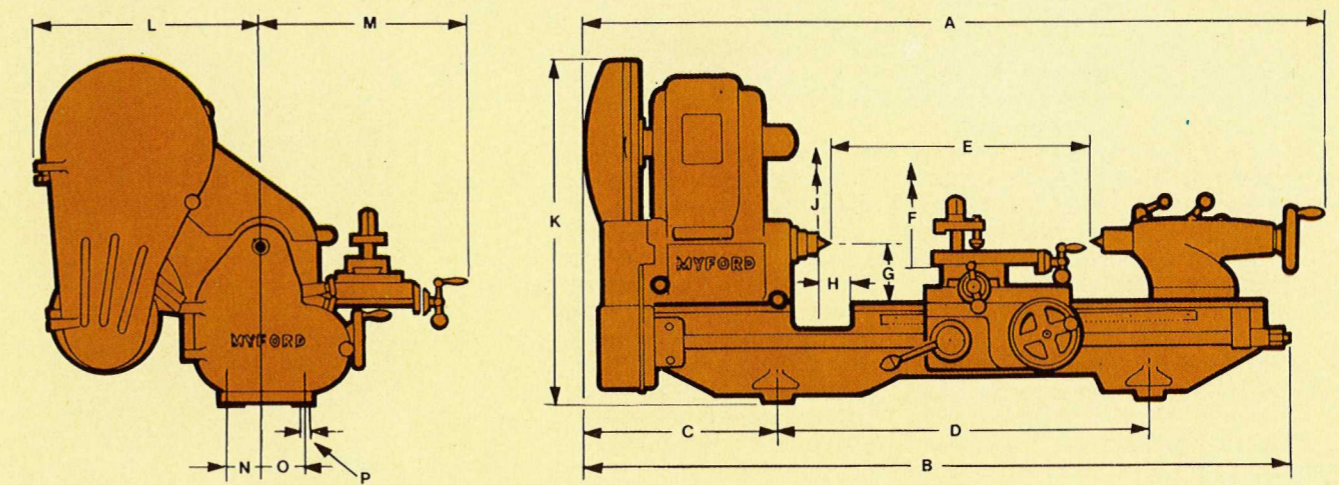
BRONZE-BUSHES to changewheels for long-life trouble free working at high speeds
 RAPID CHANGES made possible by changewheel studs which have been designed for quick, easy setting.
 RUGGED TAILSTOCK with sensitive feed, extra-long barrel, and rapid barrel feed.
 EXTENDED END BRACKET allowing increased stroke for milling operations etc.
 SWIVELLING TOPSLIDE swivels 63° either way, and the base is graduated 45° either side.
 BORING TABLE TYPE CROSS-SLIDE with T-slots which allow the attachment of workpieces and accessories.
 WICK FEED OILING which adjusts automatically to selected spindle speed.
 REDUCTION GEARING gives the low speeds which are essential for heavy duty work.
 FOURTEEN SPINDLE SPEEDS provided, from 27 to 2105 r.p.m. with no annoyingly wide gaps.
 BELT DRIVE ensuring quiet operation at high speeds.
 EASY ACCESS to gears and belts. Hinged guards with rubber pads provide total enclosure without rattles.



ML7-R No. 10/048. For leadscrew drive for quick-change lathes 10/049 and 10/051 see over. Guards have been removed for clarity.

ML7-R		Specification	Super 7	
BED				
4 1/2"	114mm	Width across shears	4 1/2"	114mm
1 3/4"	44.5mm	Width of front shear	1 3/4"	44.5mm
1 3/8"	35mm	Width of rear shear	1 3/8"	35mm
1/2"	12.7mm	Depth of shears	1/2"	12.7mm
7"	178mm	Swing over bed - diameter	7"	178mm
10"	254mm	Swing in gap - diameter	10"	254mm
1 1/2"	38mm	Swing in gap in front of faceplate	1 1/2"	38mm
HEADSTOCK				
3 1/2"	88.9mm	Centre height	3 1/2"	88.9mm
1 1/4" x 7/16" long		Spindle nose register - diameter	1 1/4" x 7/16" long	
1 1/8" x 12 t.p.i.		Spindle nose thread	1 1/8" x 12 t.p.i.	
No. 2 M.T.		Spindle nose bored	No. 2 M.T.	
0.59"	15mm	Hole through spindle	0.59"	15mm
7.794:1		Backgear reduction	7.794:1	
6 3/4"	170mm	Faceplate (8 slots) - diameter	6 3/4"	170mm
2105, 1480, 1050, 740		Spindle speeds (14) (1420 r.p.m. motor) r.p.m.	2105, 1480, 1050, 740	
600, 420, 300, 210			600, 420, 300, 210	
	135, 95			135, 95
	77, 54, 39, 27			77, 54, 39, 27
CARRIAGE				
4 1/8"	104mm	Swing over cross-slide - diameter	4 1/8"	104mm
5"	127mm	Cross-slide travel	6 3/8"	162mm
30 sq. ins.	19355mm ²	Cross-slide (boring table) area	41 sq. ins.	26450mm ²
2 1/4"	57mm	Topslide travel	2 1/4"	57mm
63° either side		Topslide swivels	360°	
10 t.p.i.	2mm	Cross-slide and topslide feedscrews	10 t.p.i.	2mm
		Micrometer dial divisions (Imperial)		
0.001"		cross-slide (movement)	0.001"	
0.001"		topslide (movement)	0.002"	
		Micrometer dial divisions (metric)		
	0.05mm	cross-slide (on work diameter)		0.05mm
	0.05mm	topslide (movement)		0.05mm
LEADSCREW				
8-120 t.p.i.	0.2-3.5mm*	Standard screwcutting range	8-120 t.p.i.	0.2-3.5mm*
0.0037"	0.093mm	Standard finest long feed per rev.	0.0037"	0.093mm
		Standard finest cross feed per rev.	0.0035"	0.088mm
TAILSTOCK				
No. 2 M.T.		Barrel bored	No. 2 M.T.	
2 3/4"	70mm	Barrel travel	2 3/4"	70mm
7/16"	11mm	Set-over to front	7/16"	11mm
3/16"	5mm	Set-over to rear	3/16"	5mm
196lbs	89Kg	Nett weight of bench lathe less motor	220lbs	100Kg
SPECIFICATION LONG BED MACHINES				
220lbs	100Kg	As above except	244lbs	111Kg
		Nett weight of bench lathe less motor		
STANDARD EQUIPMENT (except quick-change lathes)				
includes:-				
6 3/4" (170mm) diameter faceplate, catch plate, set of 14 changewheels and spacer, changewheel guard, motor drive and headstock belt guards, 2 double ended spanners, 5 hexagon keys, 'cee' spanner, oil gun, centres for headstock and tailstock, vee belts and motor pulley; also, for Super 7 only, square mouth spanner.				
*For metric pitches, 2 extra changewheels (21 tooth) required.				

A	46 1/2" or 58 1/2"	1181 or 1486mm	F	4" dia.	101mm dia.	M (ML7-R)	12 3/4" Max.	324mm
B (ML7-R)	41 1/4" or 53 1/4"	1048 or 1353mm	G	3 1/2"	88.9mm	M (Super 7)	15 3/4"	400mm
B (Super 7)	43 1/2" or 55 1/2"	1105 or 1410mm	H	1 1/2"	38mm	N	2 1/16"	52.5mm
C	11 1/4"	286mm	J	10" dia.	254mm dia.	O	2 9/16"	65mm
D	22 1/4" or 31 1/4"	565 or 794mm	K	20 1/2"	521mm	P	For 5/16" dia. Bolts	For 8mm dia. Bolts
E	19" or 31"	483 or 787mm	L	13 1/2"	343mm			



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SUPER 7 HIGH SPEED CENTRE LATHE

In addition to the wide range of features available on the ML7-R, the Super 7 also provides the features illustrated below.

LEADSCREW HANDWHEEL with graduation of 0.001" for accurate length setting.

SENSITIVE TAILSTOCK with ball thrust for barrel feed screw, minimising friction when drilling large-diameter holes.

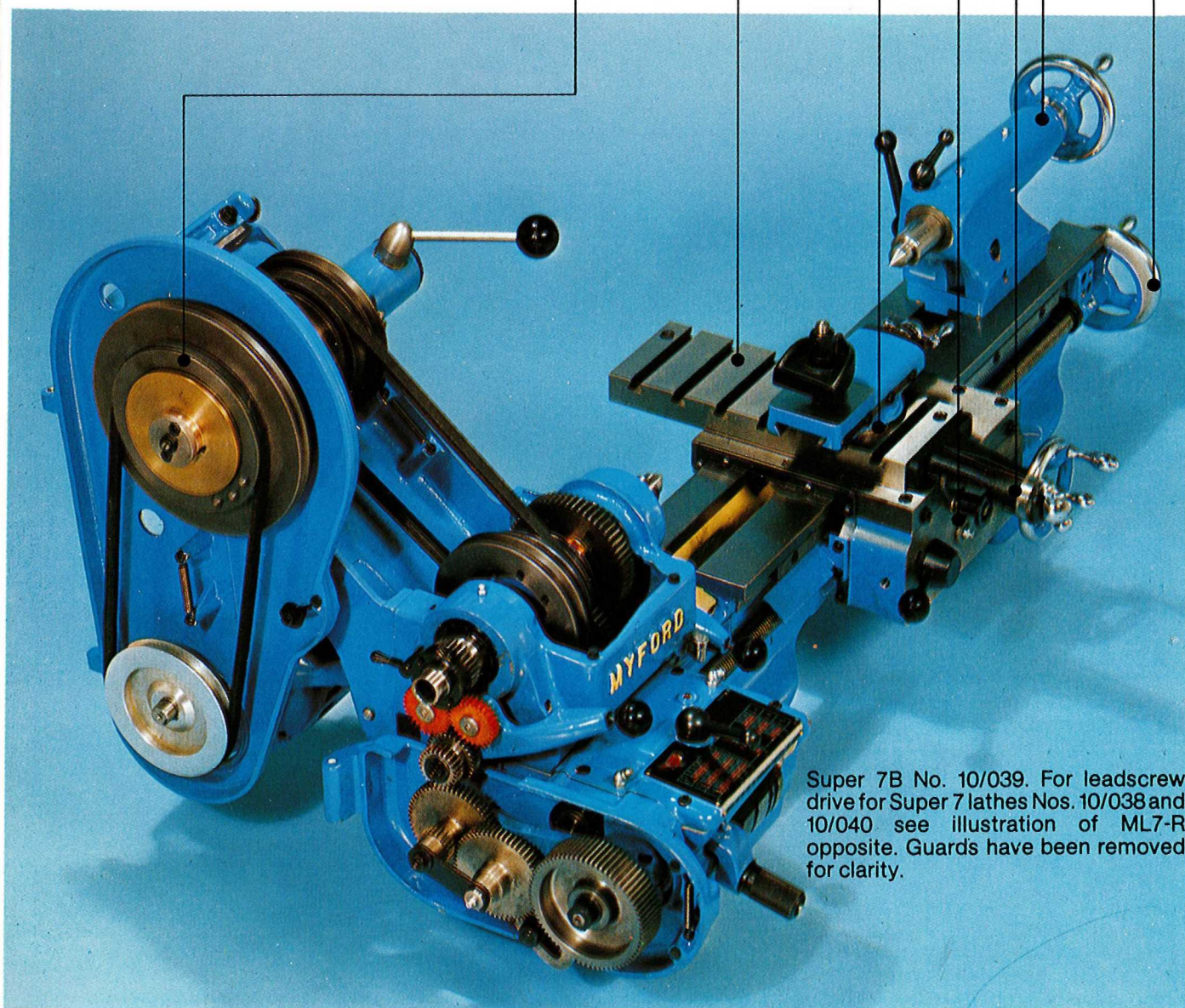
QUICK-SETTING INDEX DIALS which are operated by friction. No locking screws are required.

POWER TRAVERSE TO CROSS-SLIDE WITH OVER-RUN PROTECTION facilitates facing and milling operation and is readily operated by the push/pull clutch knob. Automatic disengagement occurs at the limit of inward movement.

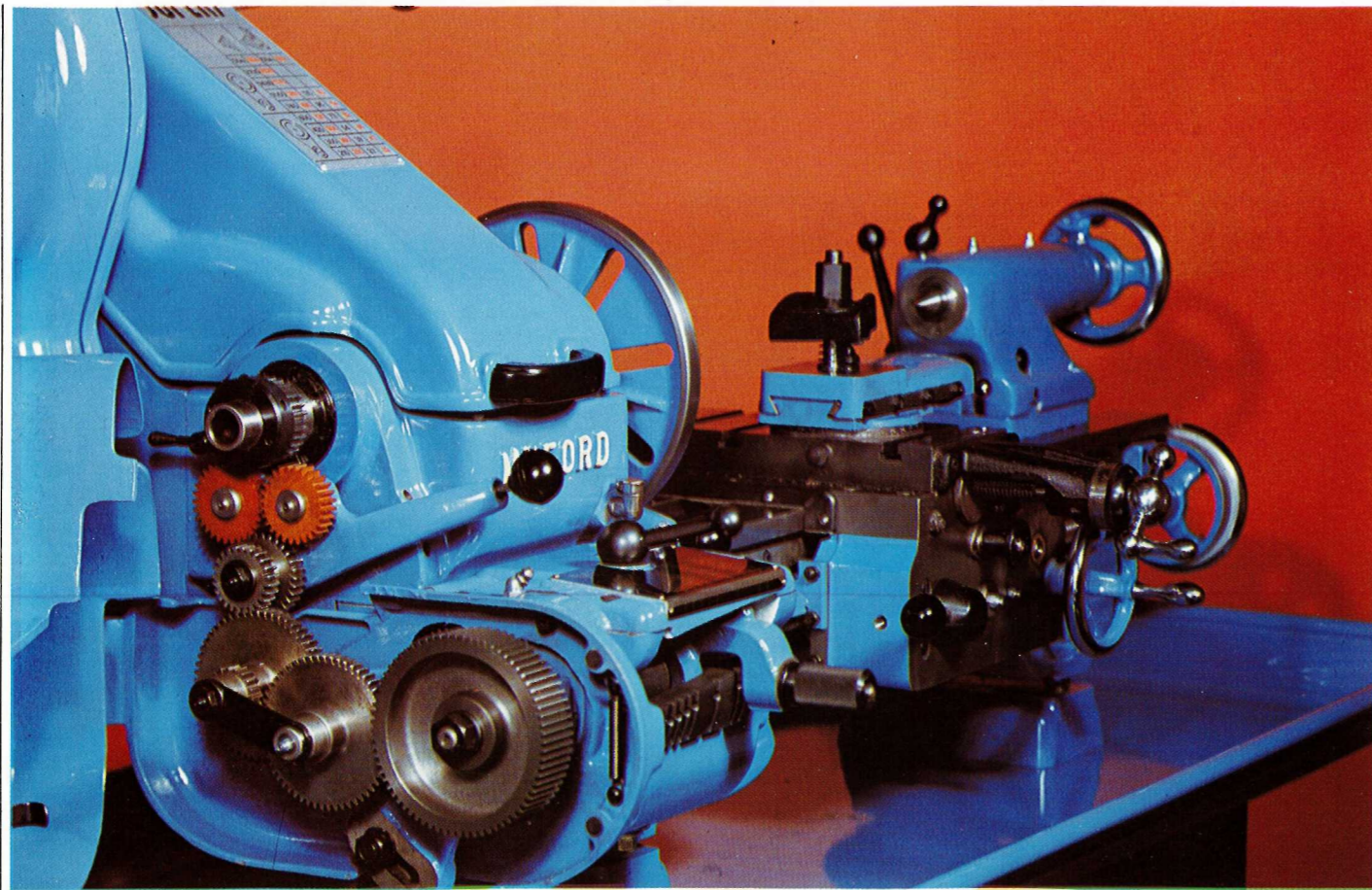
FULLY SWIVELLING TOPSLIDE with 360° graduated base.

LARGE AREA BORING TABLE with block type gib. Great length and stroke increase the scope of rear toolpost and milling slides.

COUNTERSHAFT CLUTCH; lever operated cone clutch provides fine 'inching' capacity.



Super 7B No. 10/039. For leadscrew drive for Super 7 lathes Nos. 10/038 and 10/040 see illustration of ML7-R opposite. Guards have been removed for clarity.



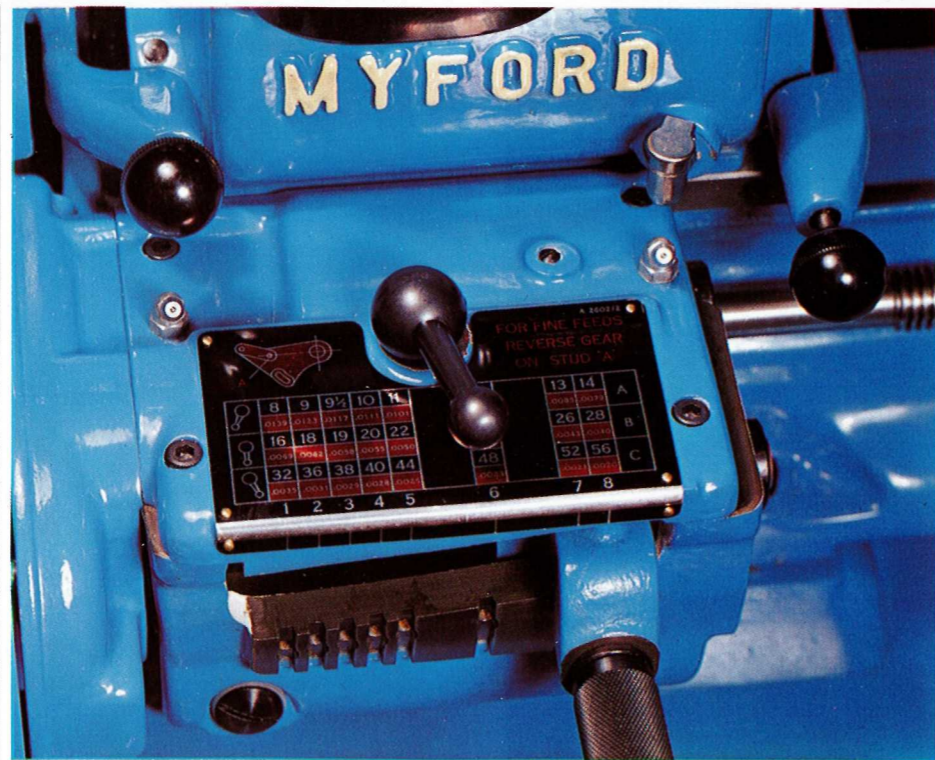
Quick Change Lathes

ML7-RB Nos. 10/049 and 10/051 - Super 7B Nos. 10/039 and 10/041

The Quick Change Lathe is an invaluable time-saver for all general turning and cutting operations because the feed rate can be varied instantly. The illustration of the box chart shows how a fine feed can be doubled or quadrupled simply by movement of the upper lever. Small adjustments of the feed rate, on the other hand, are controlled by the front lever. To change the setting of the box from feed to screw cutting is a simple matter of reversing one of the gears in the input drive.

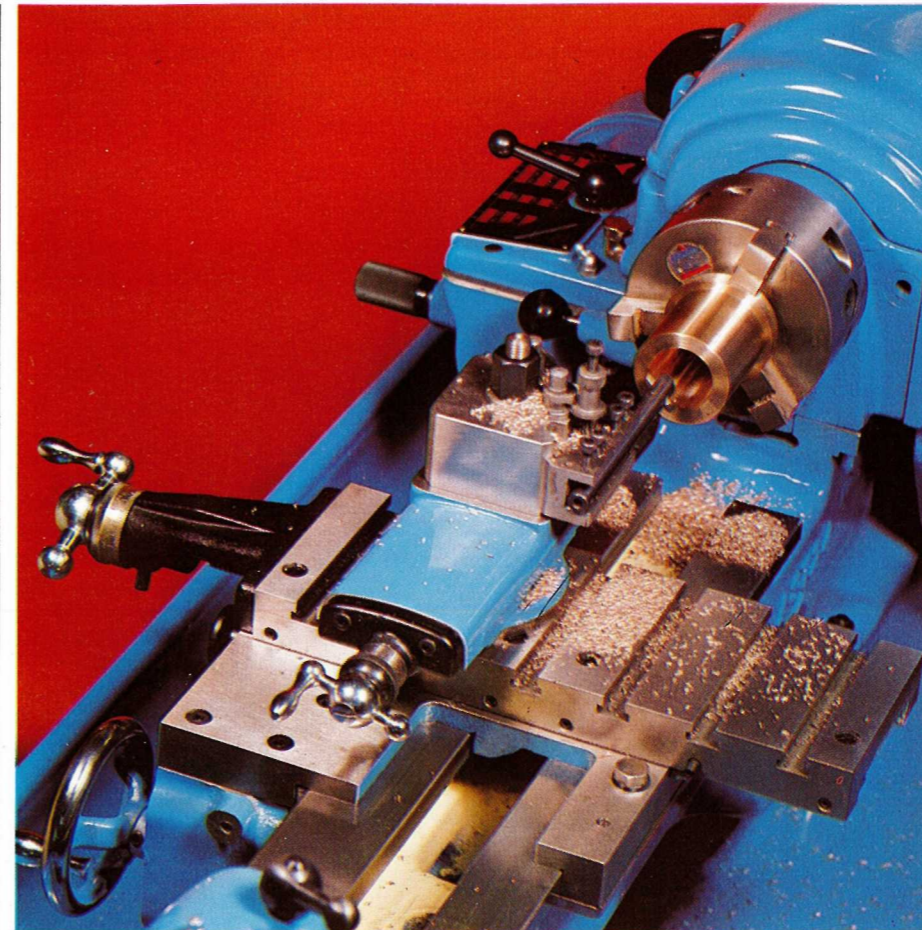
The Myford Quick Change Gearbox

As well as being a standard fitting on the Quick Change Lathe, the Myford Quick Change Gearbox can be purchased separately as an attachment for existing machines. It has been designed to provide long trouble free service and to be smooth and easy in operation. The box gears, which are all made of hardened steel, are mounted on precision ground, high tensile steel shafts. The bottom of the box is closed to form an oil bath in which the gears revolve, lubricating the teeth throughout. Inside the hinged guard at the end of the lathe the input gears are located. These are also made of hardened steel and they run on extra large diameter, hardened steel pins which have oil nipples for pressure lubrication. To ensure maximum rigidity and correct meshing of the gears, the gear pins are securely clamped in their locating holes in the gear quadrant, which itself has double anchorage. Twenty-four threads

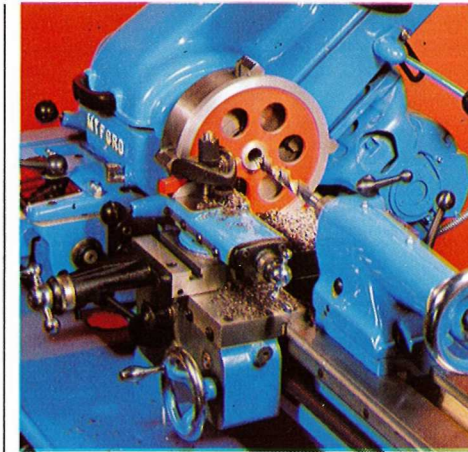


from 8 to 56 t.p.i. and twenty-four feeds from 0.0139 to 0.0020 inches per revolution of the headstock spindle are covered. These are shown on the chart on the lid of the box. Inside the hinged guard is a chart showing 29 metric threads from 0.2 to 4.0 mm pitch. For the cutting of these threads the number 1481/1 metric conversion set is required. Twenty-six of the pitches from 0.2 to 2.75 mm, can be obtained merely by manipulating the levers and altering the first driving gear once the metric conversion set has been fitted. A book of operating instructions is supplied with the gearbox and this in-

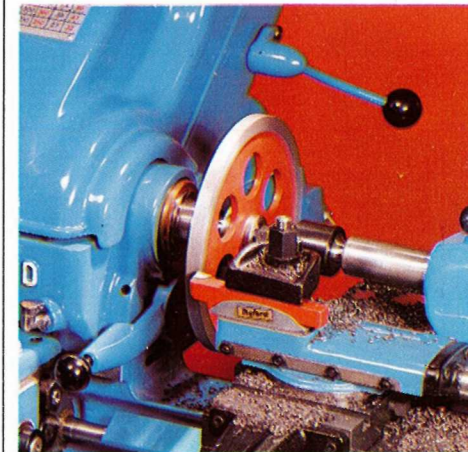
cludes not only a reproduction of the metric chart but also charts for the cutting of BA threads from 0 to 12 and of worm threads from 16 to 120 DP and from 0.2 to 1.0 module. Many of the diametral pitches are covered by the 1481/1 metric conversion set but others, also all the module and BA pitches require special changewheels in addition. Standard equipment for quick change lathes includes faceplate, catchplate, spanners, oil gun, guards, box chart for threads (t.p.i.) and feeds, also metric screwcutting chart.



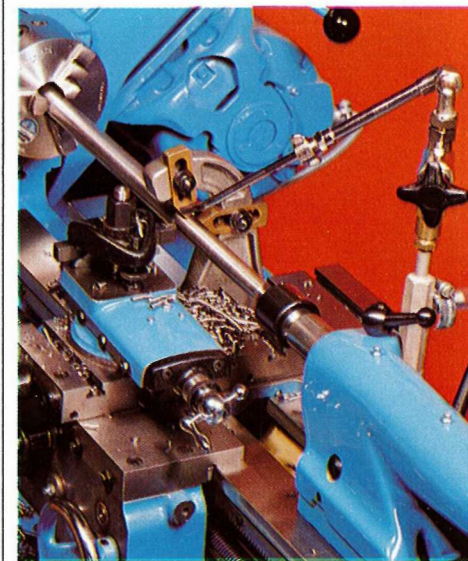
1.



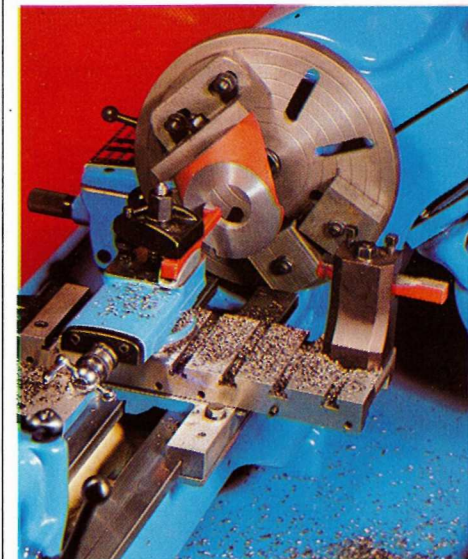
2.



3.



4.



5.

Myford

LATHES AT WORK

Standard centre lathe facilities offer scope for a wide range of turning, facing and boring operations, for either 'one-off' jobs or batch production.

1. For its first operation the bronze bush shown is held on its flange in a "Griptru" chuck whilst the body is turned, faced and bored using the Dickson interchangeable toolholders, with, for the boring operation, the 33/013 boring bar.

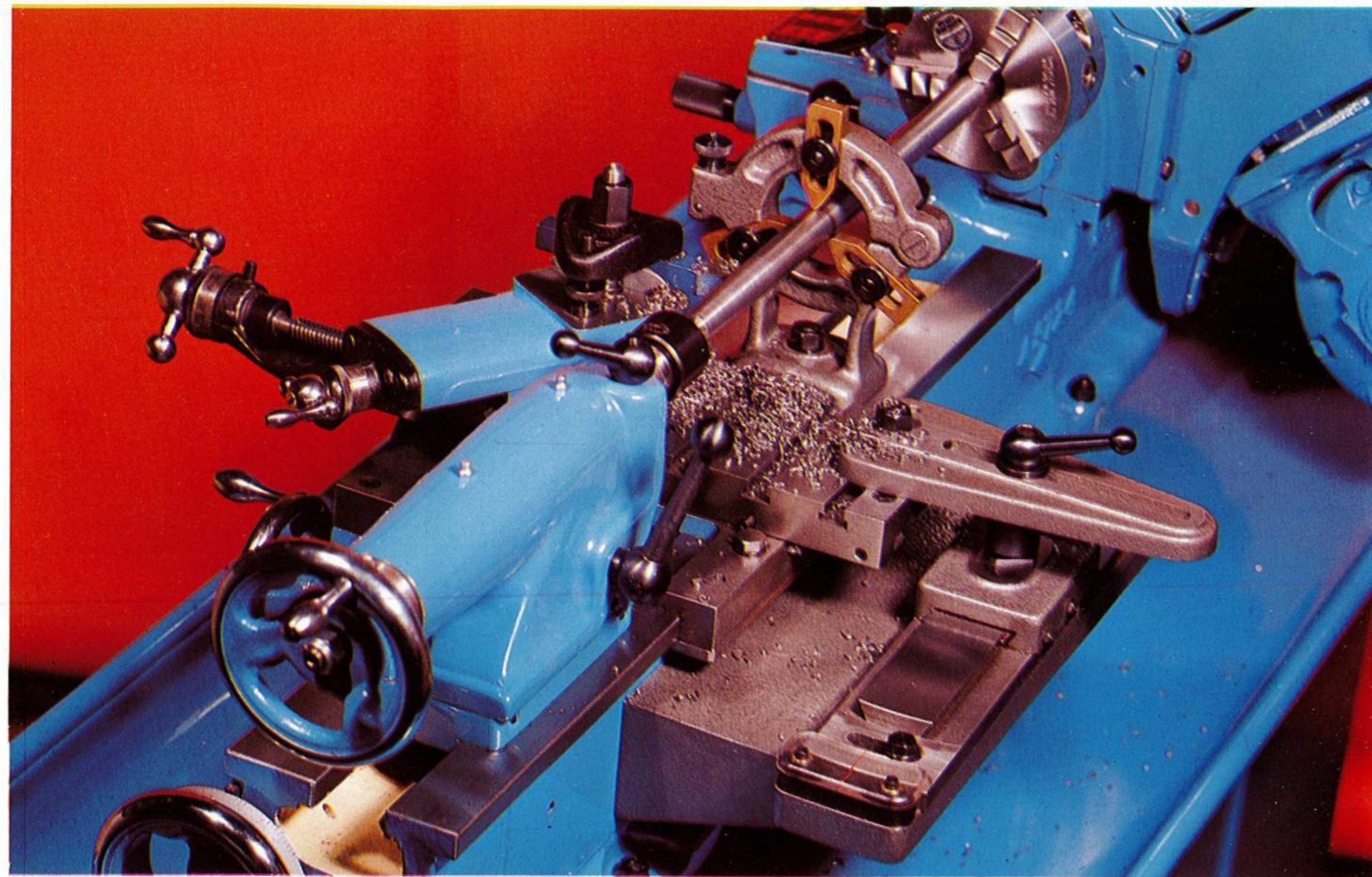
2. The first and second operations on the 126 tooth 20 D.P. changewheel blank (6.4" O.D. finished size) are performed with the blank held in a 6" 4 jaw chuck. For the first operation (shown) the facing is done with a quick-setting tungsten carbide tipped tool (109 KC) on the 107Z tool boat. This is followed by a centre drill held in the No. 41/002 drill chuck, a $\frac{39}{64}$ " drill (No. 2 M.T. shank), direct in the tailstock, a boring tool ($\frac{5}{16}$ " square shank from the No. 1478 set and finally a $\frac{5}{8}$ " reamer. The second operation consists of facing the other side.

3. In the third operation the blank is held on a special stub arbor (which can later be used for the gear-cutting operation) which

is supported at its outer end by the No. 33/028 rotating centre mounted in the tailstock. The tool is again quick-setting tungsten carbide tipped (this time 109NC) mounted on 107Z tool boat using the standard topside tool clamp.

4. The No. 1413 travelling steady, arranged for mounting on to an extension at the left hand side of the saddle, comes into its own, when long slender shafts have to be turned. The tool in use here is the quick-setting toolholder for "throwaway" tungsten carbide inserts mounted on a tool boat in the topside tool clamp, (UR12R90, PO1R and 108ZA). Because of the high speed involved in making the best use of the tungsten carbide tool, the No. 33/028 rotating centre is used in the tailstock.

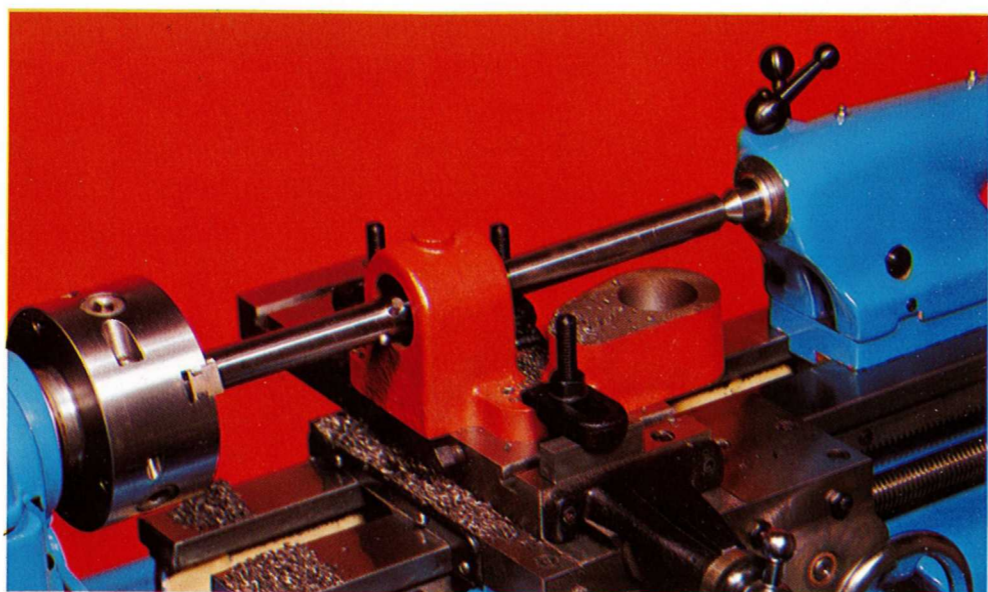
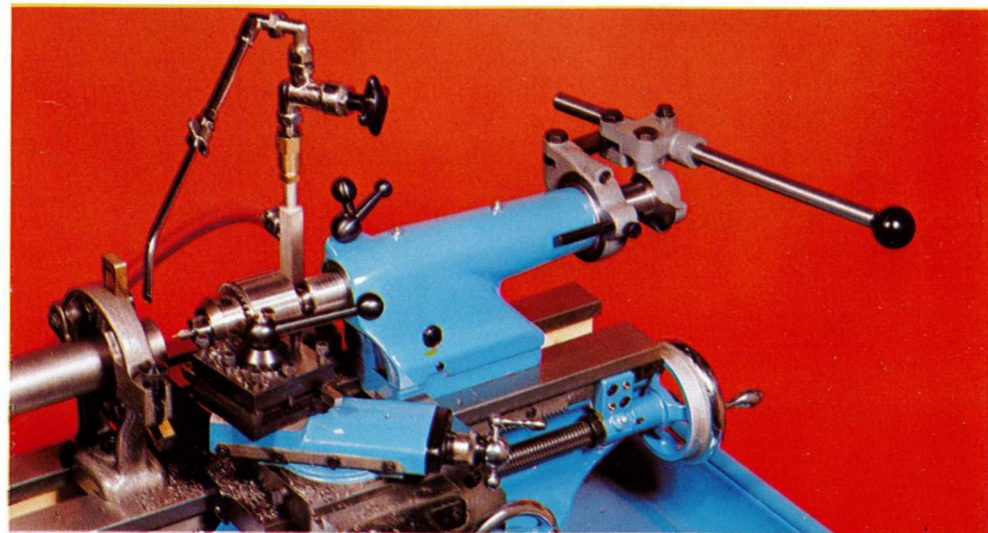
5. Although many workpieces can be bolted direct to the faceplate, the angle bracket shown calls for the No. 227 4" angle plate. Facing is in this case by a tungsten carbide quick-setting tool mounted in the rear toolpost (No. 1468) and the boring, by the 109BTC tungsten carbide quick-setting boring tool.



6. For turning the No. 2 morse taper on a long test bar such as is used for checking the alignment of either the headstock or the tailstock to the bed the No. 1429 taper turning attachment is used, the previously turned parallel portion being supported in the No. 1412 fixed steady in order to prevent deflection under the cut. This time, the tool chosen is 107M right hand off-set H.S.S. butt welded quick-setting tool with 107Z tool boat.

7. For facing the ends and centring, bars are held in the chuck and supported at the outer end in the No. 1412 fixed steady which clamps direct to the bed. In this example a $\frac{9}{16}$ " square cutter bit is used mounted in the No. 1410 four tool turret. With the centre drill held in the 41/002 drill chuck, for small quantities the standard tailstock hand-wheel will give satisfactory operation, thanks to the three start feed screw but, where the quantity is large, it may be considered preferable to use the No. 1640 lever operated tailstock attachment.

8. The cross-slide may also be used as a boring table for the mounting of castings which are unsuitable for direct or indirect mounting on the faceplate. Here we have a bearing bracket secured by means of No. 86 faceplate dogs and No. 1197 tee bolts. Boring is performed with the No. 228 boring bar which may either be mounted between centres or held in the chuck (preferably the "Griptru") and supported at the other end on the tailstock centre.



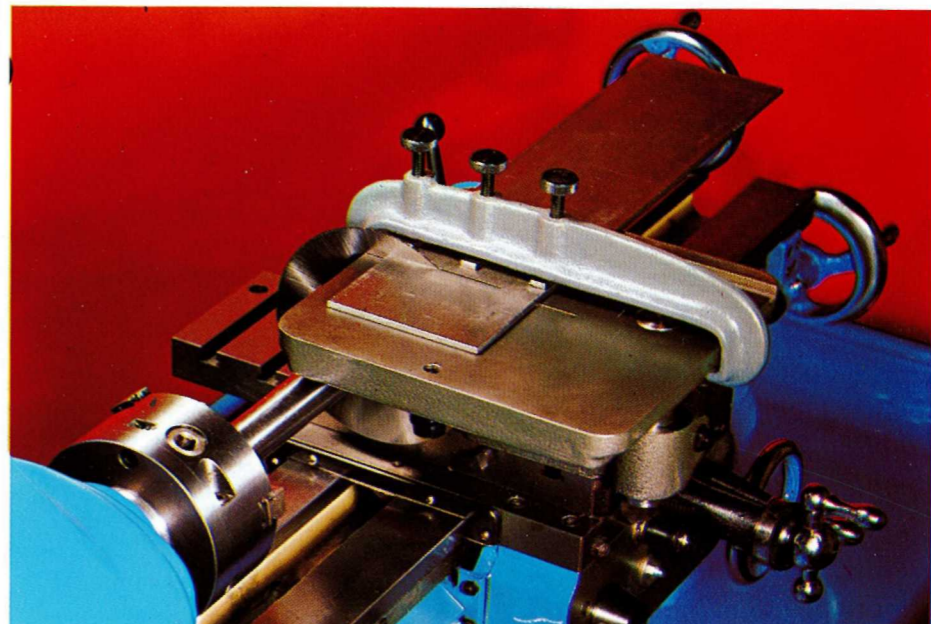
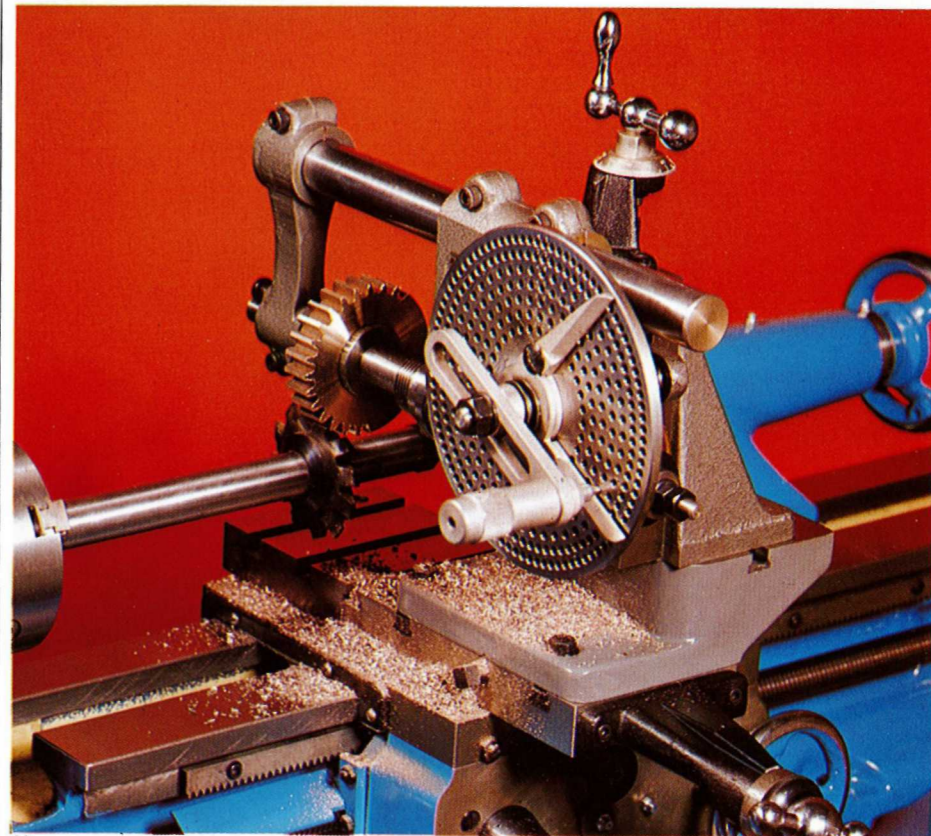
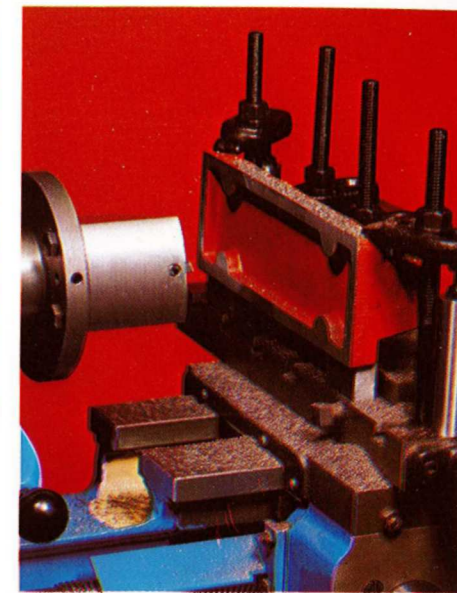
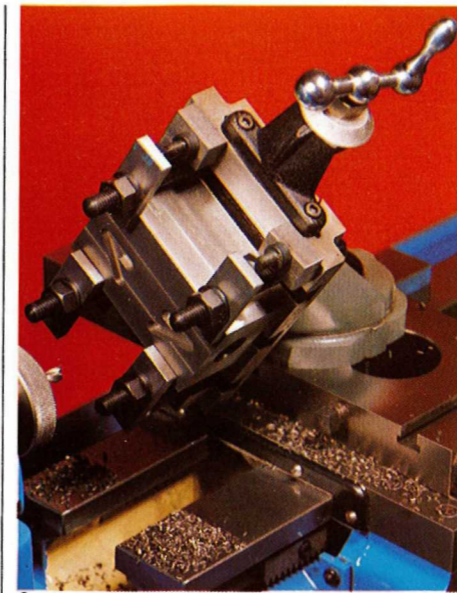
Milling on the lathe will be performed with a cutter mounted in the headstock spindle, free ended, or, with a cutter mounted on an arbor, sometimes between centres, but generally held in a chuck at the headstock end, but again using the tailstock for supporting the outer end. Whilst the chuck will usually be found to be the more satisfactory, this should be of the "Griptru" type since, with it, the arbor can be set to run true.

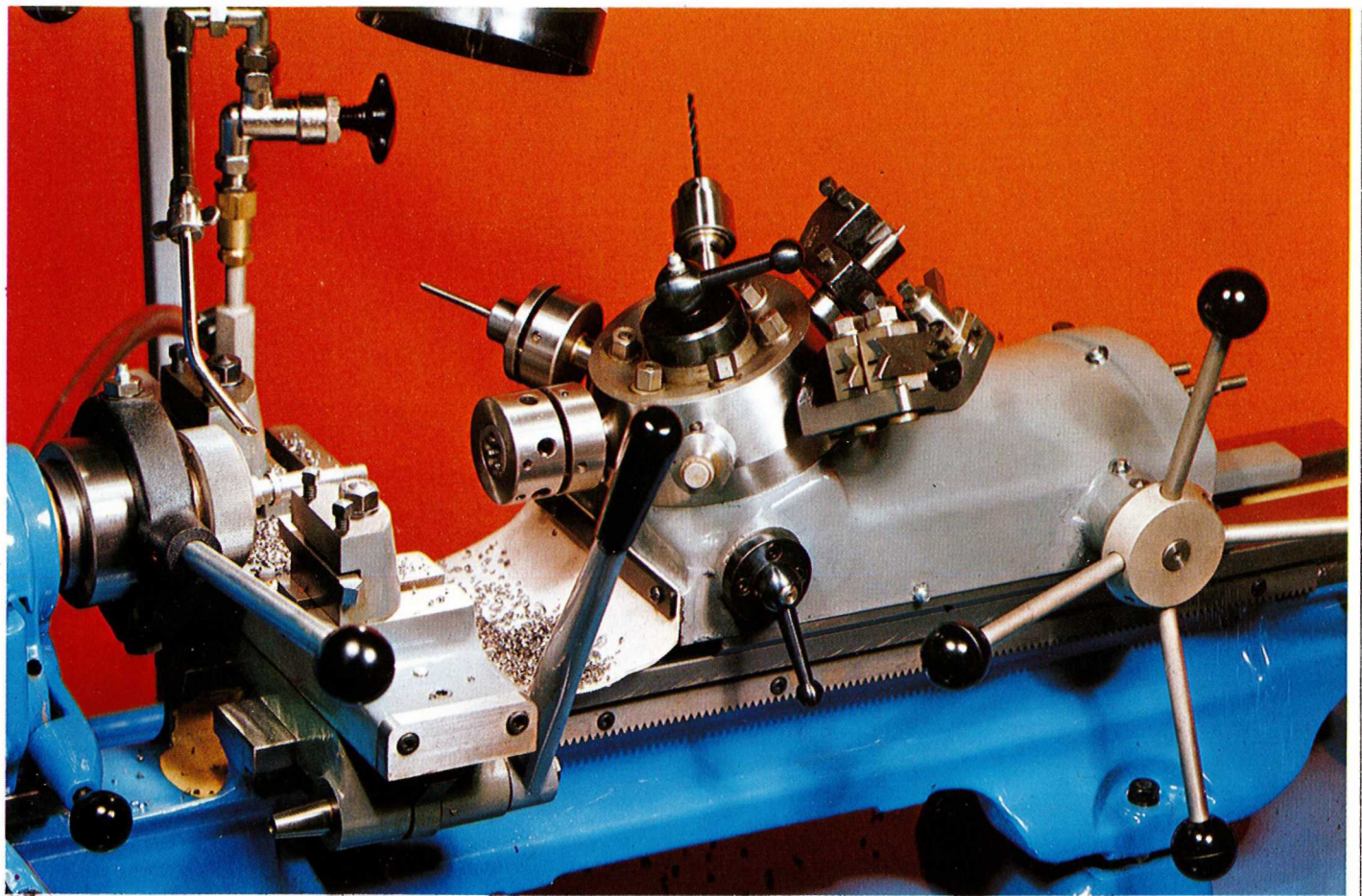
9. In this example we show a slot drill, held in a No. 1031 collet, milling ports in a valve block held on the 68/2 swivelling vertical slide, which, in turn, is bolted to the cross-slide. The use of the swivelling slide enables the work to be set easily and quickly for the various angles without unclamping.

10. Where face milling operations are to be carried out either a shell end mill (facing cutter) or a fly cutter may be used. Here we show one of the latter (made from a chuck backplate, a packing block and a $\frac{1}{4}$ " dia. H.S.S. tool bit) which has an effective sweep of 3" diameter, being used to mill the base of a cast iron mounting bracket. This is mounted on the cross-slide (on packings to bring it roughly to headstock spindle height) and clamped with the No. 86 faceplate dogs and No. 1196 tee bolts. In such an application the long cross-slide and power cross feed of the Super 7, or, in the case of the ML7-R, the optional longer cross-slide and longer feed screw with correspondingly increased slide movement are invaluable.

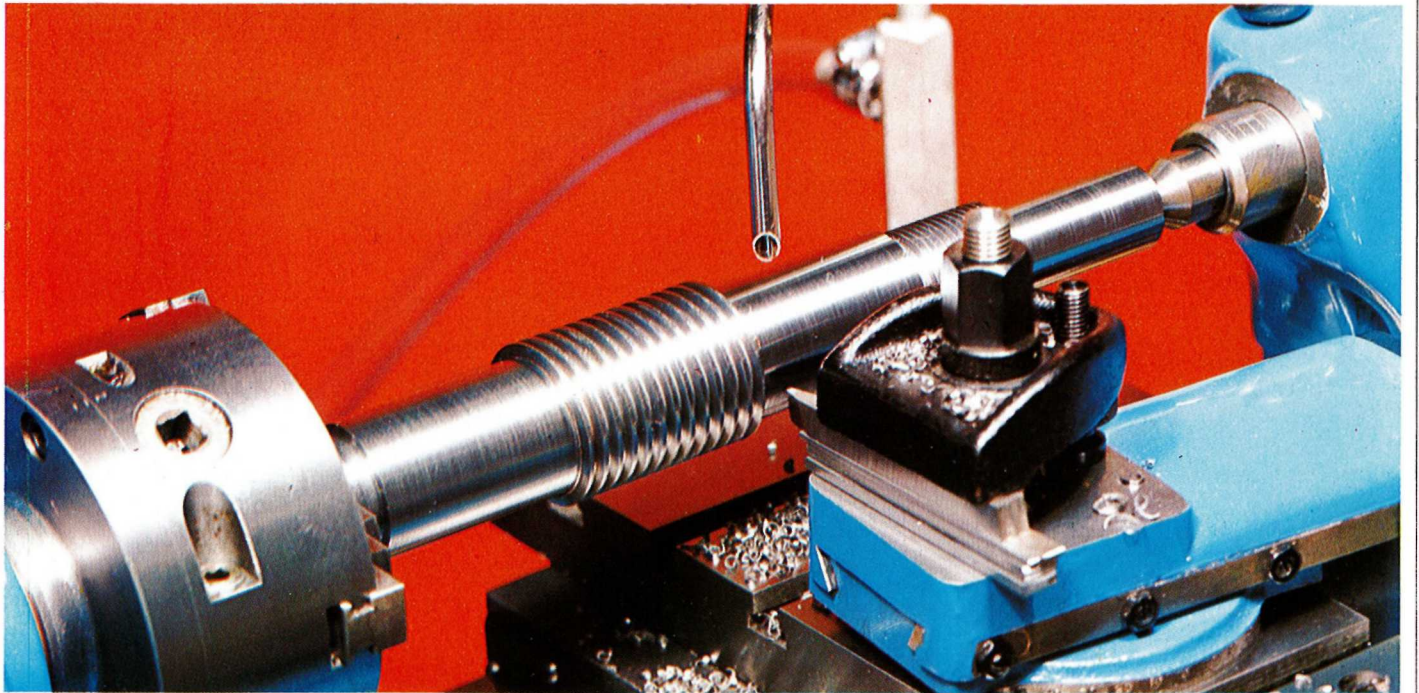
11. The third application shown is the cutting of the teeth on a spur gear. The material is bronze; the 27 teeth are 10 D.P., $14\frac{1}{2}^\circ$ pressure angle. The dividing attachment is mounted on the 67/1 plain slide which in turn is on the 30/011 raising block. As the lathe is the Super 7 the power cross feed was used, one pass only, being taken for each tooth. For cutting the teeth on gears of large diameter (e.g. the 126 tooth gear shown in figures 2 & 3) it is necessary to use 68/2 swivelling slide.

12. The No. 1407 saw table is seen here, being used to cut off a piece of $3\frac{1}{2}$ " x $\frac{1}{8}$ " mild steel plate, using the No. 1431 5" diameter saw for metal. The work is being held under the 74/1942 clamping bridge, using backing pieces to prevent the clamping screws from damaging the surface of the material. As the operation was performed on a Super 7 lathe the power traverse was employed for the cross-slide feed. In conjunction with the No. 1432 6" diameter saw, timber may be either 'ripped' or cross-cut. For the former operation an adjustable fence can be clamped to the left of the blade, whereas for the latter, the fence is fitted with a key (included in the equipment) to slide in the slot to the right of the blade. In this case it can be used either 'square' or at an angle.





73.



14.

Series production of components in either small or large batches is greatly facilitated by the range of appropriate equipment available. When manufacturing from bar stock up to $\frac{9}{16}$ " (or 15 mm) diameter the 20/065 lever operated collet chuck may be used either in conjunction with the standard carriage using the Dickson interchangeable tooling or the No. 1410 four tool turret, or, alternatively, it may be used with the 20/088 lever operated cut-off slide and the 20/068 self indexing turret slide.

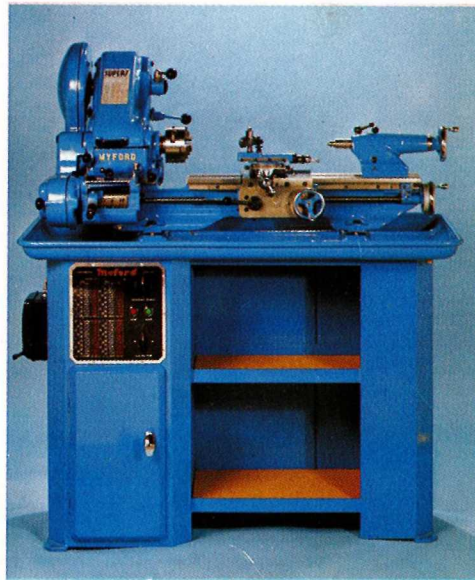
13. For the pin illustrated the bar stock is fed out to the No. 6A adjustable stop and

machining is carried out with the No. 20A box turning toolholder using two steadies and two tools; the No. 13A drilling and turning toolholder, used for centre drilling and chamfering the end; the No. 2A die holder with a $\frac{3}{8}$ " B.S.F. button die; the No. 17A small drill holder and the No. 1A tap holder for the 2 B.A. tap. The die and tap holders are of the self releasing type and withdrawal is accomplished by reversal of the lathe spindle.

Where circumstances permit or the nature of the component demands it, the No. 20A turning toolholder could be replaced by the No. 60A roller steady box toolholder; the No. 2A die holder by a self opening die

head, which can be directly withdrawn, thus avoiding the reversal of the lathe on this operation; the tap and tap holder, by a reamer held in the No. 590A floating holder; and where drills above $\frac{1}{4}$ " diameter are to be held, the No. 9A plain round drill holder is available.

14. The example of screwcutting depicts a worm shaft for a worm reduction unit. The thread is 20 D.P. $14\frac{1}{2}^\circ$ pressure angle. To the right of the worm thread, and adjacent to the nut on the tool clamp stud the 16 t.p.i. Whitworth form thread for the locking collar can be seen.



The left-hand illustration shows the No. 10/048 ML7-R lathe on the No. 20/023 stand whereas to the right is the No. 10/039 Super 7B lathe on the No. 1486/3A industrial stand. Not only are the stands interchangeable between the machines, but long bed versions of both types and a variety of switchgear to suit individual requirements are available. The No. 40/004 Griptru chuck shown is but one of the many items of available additional equipment.

Colours shown are for illustrative purposes only. Machines are finished in standard Myford colour.

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