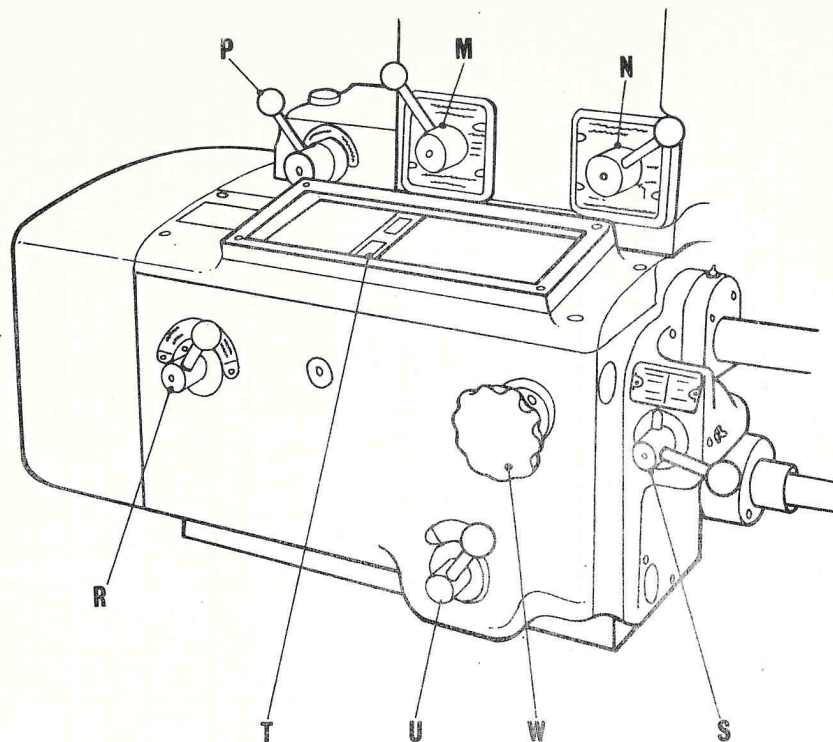


5.1 GEARBOX



Ensure that the oil is at the correct level and that it is circulating when the gearbox is running, this can be seen through the oil sight.

Drive to the gearbox is through the change gears and these should be lubricated daily. Section 3.11.

The gearbox has 18 changes, which, together with a 3 change in the rear end gearbox, gives 45 changes of feed and 45 different threads per inch without alteration to the change gears. Ranges of mm., and inch pitches are obtained by the movement of two levers, using the same change gears.

A full range of diametral and module pitches can be cut through the box using extra change gears.

Provision is made for a more direct drive to the leadscrew which gives a thread with a slightly more accurate pitch. The threads obtainable through the direct drive are shown on the charts.

• THREAD AND FEED SECTION.

Lever 'M' on the headstock is for selecting the direction of the feed or pitch, i.e. L.H. or R.H.

For all normal feeds and pitches the lever 'N' on the headstock should be in the 'normal' position indicated on the instruction plate.

Levers 'R' and 'S' on the gearbox are for selecting the type of pitch, i.e. module, diametral or inches and should be set accordingly.

Thread indicator plate 'T' should be set by means of the feed change knob 'W' to the column in which the required thread or feed appears. The lever 'P' on the rear end gearbox should then be set to the position shown on the L.H. side of the plate 'T' and lever 'U' on the gearbox should be set to the position shown on the R.H. side of the plate 'T'

Lever 'U' changes the feed in the ratio of 4 to 1.

NOTE:- To operate the feed change knob 'W' the gearbox should be run slowly and the lever 'U' put into the neutral position.

5.11 GEARBOX continued

Feeds coarser than those shown on the chart can be obtained by placing lever 'N' in the "coarse" position which gives a 4 to 1 coarse pitch ratio. The rear speed selection lever 'F' on the headstock should then be placed in the "Low Gear" position. Refer to section 4.1. These very coarse feeds should always be used with discretion.

Feeds can also be halved by engaging the 4 to 1 coarse pitch ratio and placing the rear speed selection lever 'F' in the "High Gear" position. Thus 9 finer longitudinal feeds from .0008 in. to .00045 in. per rev. may be obtained, on lathes with belt overdrive these feeds are from .0005 to .0003 in. per rev.

A safety spring loaded coupling transmits the feed through the feed shaft to the apron. The slipping load is pre-set, and cannot be adjusted.

The feeds at the higher spindle speeds are limited by the speeds of the feed gearing and the long feed shaft thus:

Up to 1000 R.P.M. max. feed is	.0256 in. (.650 m.m.) per rev.
at 1120 R.P.M. max. feed is	.0216 in. (.549 m.m.) per rev.
at 1400 R.P.M. max. feed is	.016 in. (.406 m.m.) per rev.
at 1600 R.P.M. max. feed is	.0142 in. (.361 m.m.) per rev.
at 2240 R.P.M. max. feed is	.0111 in. (.282 m.m.) per rev.

NOTE: With the lever 'R' set to module, millimetre or inches pitch the feed shaft is still engaged. But in this condition the lathe should not be used for normal turning, the lever must be put over to the right hand "feed" position.

		INDICATOR POSITION										
		1	2	3	4	5	6	7	8	9		
CHANGE GEARS	THREADS PER INCH	4	4½	4¾	5	5½	5¾	6	6½	7		
		8	9	9½	10	11	11½	12	13	14		
		16	18	19	20	22	23	24	26	28		
		32	36	38	40	44	46	48	52	56		
END BOX 30	NORMAL PITCH IN MM.	4	4.5	4.75	5	5.5	5.75	6	6.5	7		
		2	2.25		2.5	2.75		3	3.25	3.5		
		1	1.125		1.25	1.375		1.5		1.75		
		0.5						0.75		0.875		
INTER STUD 55	CROSS FEEDS $\frac{2}{3} \times$ NUMBERS BELOW											
	LONGI-TUDINAL FEEDS IN THOUS. PER REV.	25.6	22.8	21.6	20.5	18.6	17.8	17.1	15.8	14.6		
		12.8	11.4	10.8	10.2	9.30	8.90	8.55	7.90	7.30		
		6.4	5.70	5.40	5.12	4.65	4.45	4.27	3.95	3.65		
		3.2	2.85	2.70	2.56	2.32	2.22	2.13	1.97	1.82		
		1.6	1.42	1.35	1.28	1.16	1.11	1.06	0.98	0.91		
SCREW 60												

ELECTRICAL INTERLOCK.

The lathe will not run unless the change gear cover is in position.

CHANGE GEARS.

These are 12 D.P. $14\frac{1}{2}^{\circ}$ pressure angle.

LEADSCREW.

This is designed to be reversible, after eventual wear on the flanks of the thread it can be removed by following the instructions (section 11.51), relating to the removal of the lead screw only.